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COASTAL DEVELOPMENT PERMIT APPLICATION

Application number.....**3-06-033, Pebble Beach Golf Links, 5th Green Seawall**

Applicant.....**Pebble Beach Company (Cheryl Burrell)**

Project location .....Pebble Beach Golf Links 5th Hole (APN 008-403-003), Pebble Beach (Monterey County).

Project description.....Construct a seawall at base of the coastal bluff to protect the 5th Green, using concrete reinforced with steel tiebacks and artificial stone fascia. The proposed seawall is 160 feet long with 22 feet of buried wing walls (182 lineal feet total), and ranges from 6.5 to 14.5 feet tall (total of 14 to 22 feet in height including below ground portion of structure), with unprotected upper bluff backfilled and vegetated to re-create 2:1 slope.

Approvals Received .....Monterey County Coastal Development Permit PLN030508 (CDP #3-MCO-03-412) for emergency rip-rap; Coastal Commission Emergency Permit #3-03-111-G (effective 12/10/03) for temporary rip-rap shoreline protection.

File documents.....Emergency permit file 3-03-111-G; CCC Coastal Development Permit file 3-04-030 (previous withdrawn application); and CCC Coastal Development Permit file 3-06-033.

Summary of Staff Recommendation:

Staff recommends that the Commission **approve, with conditions**, the proposed construction of a seawall to protect the 5th Green of the Pebble Beach Golf Links. The Pebble Beach Golf Links (PBGL) is an oceanfront golf course that lies along the shore of Stillwater Cove, just north of the City of Carmel-by-the-Sea. The 5th hole of the PBGL course is located along the blufftop between Stillwater Cove Pier and Arrowhead Point. The 5th Hole was constructed at this site in 1998. Prior to its development, concern existed about erosion of the oceanfront and ravine bluffs along the north and west of the hole. However, the geotechnical report prepared for construction of the hole found that through surface and subsurface drainage improvements, and erosion control landscaping, the immediate use of seawall(s) and retaining walls along the coastal bluffs would be avoided. Notwithstanding this conclusion, ongoing coastal erosion has occurred along the bluffs beneath the 5th tee and 5th green. As a result of a landslide at the 5th green in January 2004, an emergency permit was granted by the Coastal Commission

to temporarily retain the slide. The follow-up permit application requested permanent seawalls at the base of the 5th tee and 5th green complexes to halt ongoing erosion/bluff recession in these areas. The Commission held a hearing on the project on April 15, 2005 and due to a variety of concerns, the Pebble Beach Company withdrew their application before the Commission held a final vote.

The applicant is thus proposing the current project as a follow up to the emergency permit, and to respond to ongoing coastal erosion experienced at this location. The 5th tee seawall has been removed from the project, and therefore, the current application proposes a seawall for the 5th green only. The applicant found that they could relocate the 5th tee complex landward of its present position to avoid the need for shoreline armoring. This planned retreat scenario had been previously rejected by the applicant as infeasible, but further examination of the shoreline and consideration of the dynamics of the hole found it to be a feasible alternative. Therefore, the current application requests a seawall to protect the 5th green only.

The 5th green complex is an integral part of the 5th Hole, and of the larger PBGL course, which includes substantial development and infrastructure. The green complex includes both structural and non-structural elements, such as the green, green surround, bunker complex (sandtraps), and all surface and subsurface drainage improvements (curtain drains, trench drains, drop inlets and piping) that have been constructed to direct drainage off of the green and away from the bluff top. The 5th green seawall will be constructed using reinforced concrete with steel tiebacks and artificial stone fascia, (concrete colored, contoured, and texturized to match adjacent bluff face). As proposed, the seawall is 160 feet long with 22 linear feet of buried wing walls, with a height that varies from 14 to 22 feet. The seawall will be constructed as a vertical seawall to maximum height of 22 feet, then the upper bluff areas will be backfilled and vegetated to recreate a 2:1 slope. The seawall will be keyed in to the underlying bedrock, located within 4 feet of the base of the bluff, and designed to minimize encroachment on the beach.

Although the 5th green complex, which ranges from 10 to 20 feet from the bluff edge, is not immediately threatened by ongoing average shoreline erosion rates of 0.6 to 0.7 feet per year, episodic erosion, which can cause as much as 15 to 20 feet of bluff recession in a single event, does put the structural elements of the green in danger. Also, the bluff face is marginally stable, but under seismic loading or saturation from rainfall or seepage the slope is at risk from any future seismic or heavy rainfall event. Use of the vertical wall design, with tiebacks, would increase slope stability to an acceptable level.

As described by the applicant, alteration, relocation or loss of critical components of the 5th hole, such as elimination of portions of the 5th green, is not feasible, and would negatively affect the unique, challenging shot provided by the configuration of the hole across the bluff. According to the applicant, this would result in a significant negative impact on the quality, playability, and the rating (or difficulty) of the hole, thereby diminishing its aesthetic value and functionality.

Because of the extent of shoreline erosion that has occurred to date, and the potential for up 15 to 20 feet of erosion during a single event, evaluation of feasible project alternatives has found that non-structural alternatives alone will not be sufficient to protect the 5th green complex. The proposed seawall appears to be the least environmentally damaging structural alternative, and has been designed to use stone

fascia, which will be made of concrete colored and texturized to match adjacent bluff color, texture, and stratigraphy, and aesthetically blend into the surrounding area and so minimize potential visual impacts.

However, the project will reduce the sand supply that would otherwise serve the beach areas in the vicinity of the site, and will permanently fix a portion of the back of the beach so that ongoing shoreline erosion of adjacent areas will, over time, reduce the amount of beach available for recreation and lateral access in front of the seawall. Therefore, to prevent the seawall from resulting in the loss of lateral access, the project has been conditioned to require future lateral access over and/or around the seawall. To mitigate for the loss of recreational beach area, the conditions of approval require the provision of a new vertical accessway for public pedestrian access between Carmel Way and Carmel Beach at the southern end of the PBGL. Finally, to address the impacts of the project on sand supply and respond to the cumulative impacts of shoreline armoring in this area,[1] the recommended conditions require preparation of a shoreline management plan for the entire PBGL course. This plan must take a comprehensive look at erosion along the course's shoreline, evaluate all feasible alternatives available to avoid further shoreline protective devices, analyze cumulative impacts of existing armoring on sand supply and beach area, and identify and evaluate various methods for mitigating such impacts. Once the coursewide evaluation is complete, a subsequent condition compliance hearing will take place to determine what, if any, additional mitigation is appropriate to address the impacts of this project on sand supplies and other coastal resources. The permit has also been conditioned to monitor the seawall, beach profiles, and nearshore habitat annually for the first five years, and then every five years for the life of the project to establish baseline conditions and measure changes as a result of the approved project. In addition, the permit has been conditioned to require a construction management plan that includes all best management practices to be used to prevent impacts to marine resources during construction activities.

Staff Report Contents

[1] As a result of ongoing erosion along the PBGL shoreline, 14 previous permits have been approved by the County and Coastal Commission for shoreline protective devices, including amendments or waivers to repair, replace or extend existing seawalls and revetment structures. As a result, approximately 17 percent of the PBGL shoreline is now armored.

List of Tables

List of Exhibits

Exhibit	Title
Exhibit D.2	Current Assessors Parcel Map – showing new residential lot configuration and new 5th hole parcel on APN 008-403-003
Exhibit E.1	2001 Aerial Photo of Pebble Beach Golf Links 5th Hole
Exhibit E.2	Oblique Aerial Photo of Pebble Beach Golf Links 5th Hole
Exhibit F	Staff Photos of 5th Green (dated October 27, 2004)
Exhibit G	Proposed Site Plans and Elevations
Exhibit H	Visual Simulation of Coastal Bluff Before and After Proposed Seawall
Exhibit I.1	2001 Aerial Photo of Site Showing Proposed Construction Route
Exhibit I.2	2001 Aerial Photo of Site Showing Required Beach and Bluff Profiles - Approximate Locations
Exhibit J	Examples of Other Shoreline Protection Structures within Project Vicinity
Exhibit K	Del Monte Forest LUP Map of Shoreline Access Areas
Exhibit L	Del Monte Forest LUP Map of Recreational Facilities – showing recreational trail system
Exhibit M.1	2004 Oblique Aerial Photo of Pebble Beach Golf Links at 10th Green- showing recommended alignment for Carmel Beach Accessway along historic Redondo Trail
Exhibit M.2	Aerial Photo showing Approximate Location of Carmel Beach Accessway (Plan View)
Exhibit N	Staff photo of public recreational use of Redondo Trail to Carmel Beach
Exhibit O	Staff photos of public access way and protective fencing at Ocean Colony Golf Course in Half Moon Bay

1. Staff Recommendation on Coastal Development Permit

The staff recommends that the Commission, after public hearing, **approve** the proposed project subject to the standard and special conditions below. Staff recommends a **YES** vote on the following motion:

Motion: *I move that the Commission approve Coastal Development Permit Number 3-06-033 subject to the conditions below and that the Commission adopt the following resolution:*

Approval with Conditions. *The Commission hereby grants a permit for the proposed development, as modified by the conditions below, on the grounds that the modified development is consistent with the requirements of Chapter 3 of the California Coastal Act of 1976 (Coastal Act), and will not prejudice the ability of the Monterey County to implement its certified local coastal program in conformance with Chapter 3 of the Coastal Act. The project is located between the sea and the first public road nearest the shoreline, is in conformance with the public access and recreation policies of the Coastal Act, and will not have any significant adverse*

effects on the environment within the meaning of the California Environmental Quality Act (CEQA).

A yes vote would result in approval of the project as modified by the conditions below. The motion passes only by affirmative vote of a majority of the Commissioners present.

2. Conditions of Approval

A. Standard Conditions

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

B. Special Conditions

1. **Final Plans.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Permittee shall submit the following plans to the Executive Director for review and approval:

   A. Final Engineered Project Plans. Final plans shall show all components of project in plan view, elevation, and cross section and incorporate all geotechnical recommendations made in the geotechnical reports conducted for the project by Haro Kasunich and Associates (HKA 5/04, HKA 6/04, HKA 8/04, HKA 5/06a and 5/06b, and HKA 7/06). Evidence of the Geotechnical Engineer's review and approval of the plans shall accompany final plan submittal. At least once a week, the geotechnical engineer shall conduct an inspection during construction to ensure effective implementation of geotechnical recommendations.

B. Drainage Plans. Drainage plans shall show the location of all construction and post-construction drainage features associated with the project. These plans should be designed to prevent surface runoff from draining over the blufftop and shall include other water quality best management practices.

C. Landscape Plans. Final landscape plans shall be submitted, for Executive Director review and approval, showing that the slope above the 5th green seawall will be revegetated with drought tolerant, native plant species suited for the site, including a minimum of 40 dune buckwheat plants. No irrigation of the bluff slope will be allowed, except for surface drip irrigation in order to establish natural growth. The use of non-native species is prohibited, and the applicant shall be responsible for removal of any non-native plants that may become established within or adjacent to the project site.

D. Construction Management Plan. The Construction Management Plan shall identify and minimize the full extent of upland and beach-based construction activities, among other ways by establishing the following construction requirements, specified via written notes on the Final Project Plans. Minor adjustments to the following construction requirements may be allowed by the Executive Director if such adjustments: (1) are deemed necessary due to extenuating circumstances; and (2) will not adversely impact coastal resources.

- All work shall take place during daylight hours and lighting of the beach area is prohibited unless, due to extenuating circumstances, the Executive Director authorizes non-daylight work and/or beach area lighting.

- Construction work or equipment operations shall not be conducted below the mean high water line unless tidal waters have receded from the authorized work areas.

- When transiting on the beach, all construction vehicles shall follow the route shown on Exhibit I.1, remain as high on the upper beach as possible, and avoid contact with ocean waters and intertidal areas.

- All erosion and sediment controls shall be in place prior to the commencement of construction as well as at the end of each work day. At a minimum, silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction site to prevent construction-related runoff and/or sediment from entering into the Pacific Ocean. Fencing may be used on the beach for erosion and sediment controls (e.g., a silt fence at the base of the bluff) as necessary to contain rock and/or sediments at the project site.

- All construction materials and equipment placed on the beach shall be stored beyond the reach of waves and extreme tides, shall be removed from the beach if necessary to avoid inundation, and shall allow for continuous lateral access along the beach. Materials that remain on the beach overnight must be located on the dry sand back beach area, as close to the toe of the bluff as possible. The extent of overnight storage areas shall be kept the minimum necessary. No fueling, or fuel storage shall be allowed on the beach at any time.

Permittee shall be required to monitor weather forecasts and move all construction equipment and materials off of beach in advance of storm or extreme tidal events.

- Construction (including but not limited to construction activities, and materials and/or equipment storage) is prohibited outside of the defined construction, staging, and storage areas shown on Exhibit I.1.

- No work shall occur on the beach during weekends or holidays unless, due to extenuating circumstances (such as tidal issues or other environmental concerns), and the Executive Director authorizes such work.

- All heavy equipment used for concrete pouring located on the coastal terrace shall be set at least 50 feet landward of the blufftop and shall use flexible hoses or articulated booms to deliver concrete to the project site. Other heavy equipment may be used periodically atop the coastal bluff, but shall be removed from the blufftop when not in use. All heavy equipment and project construction materials shall be stored in the construction staging areas shown on Exhibit I.1.

- Equipment washing, refueling, and/or servicing shall not take place on the beach, or within 100 feet of the shoreline.

- Petroleum products and other hazardous materials will be kept a distance of at least 100 feet from the shoreline and shall be stored offsite.

- The construction site shall maintain good construction site housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, and cover open trash receptacles during wet weather; remove all construction debris from the beach).

- The Permittee shall notify planning staff of the Coastal Commission's Central Coast District Office at least 3 working days in advance of commencement of construction, and immediately upon completion of construction.

- All areas of beach disturbed by construction activities shall be restored to their original pre-construction condition.

2. **Construction Site Documents and Construction Coordinator.** DURING ALL PROJECT CONSTRUCTION ACTIVITIES:

   A. Construction Site Documents. Copies of each of the following shall be maintained in a conspicuous location at the construction job site at all times (where such copies shall be available for public review) and all persons involved with the construction shall be briefed on the content and meaning of each prior to commencement of construction: (a) the signed coastal

development permit; (b) the approved final plans; and (c) the approved construction management plan (see Special Condition 1D); and

B. Construction Coordinator. A construction coordinator to be contacted during construction should questions arise regarding the construction (in case of both regular inquiries and in emergencies) shall be designated, and their contact information (i.e., address, phone numbers, etc.) including, at a minimum, a telephone number that will be made available 24 hours a day for the duration of construction, shall be conspicuously posted at the job site where such contact information is readily visible from public viewing areas, along with indication that the construction coordinator should be contacted in the case of questions regarding the construction (in case of both regular inquiries and emergencies). The construction coordinator shall record the name, phone number, and nature of all complaints received regarding the construction, and shall investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry.

3. Pebble Beach Golf Links Shoreline Management Plan. WITHIN TWO (2) YEARS OF PROJECT APPROVAL, the Permittee shall develop and submit, for Executive Director review and approval, a comprehensive Shoreline Management Plan for the shoreline parcels of the Pebble Beach Golf Links (from the 18th green in the northwest to the 10th green in the south). The main purpose of the shoreline management plan shall be to evaluate all feasible alternatives in order to avoid further shoreline protective devices that might adversely affect coastal resources and to provide a comprehensive plan for avoiding and mitigating the impacts of shoreline armoring. Towards this end, the plan shall identify where ongoing erosion is of concern, when and where non-structural actions (such as setbacks, relocation, landscape and drainage improvements) can be used to reduce risk from shoreline erosion, and where shoreline protective structures are anticipated to be necessary. The Shoreline Management Plan shall also include an analysis of the project-specific and cumulative impacts of existing and anticipated shoreline structures on sand supplies, beach profiles, and coastal access and recreation opportunities. This impact assessment shall be accompanied by the identification and evaluation of the full range of mitigation measures available to avoid and mitigate such impacts. This shall include an assessment of opportunities to mitigate the retention of sand supplies through the development and implementation of a sub-regional beach replenishment program, as well as an evaluation of options to provide additional recreational beach areas, among other ways, by removing existing shoreline structures along the Pebble Beach shoreline and acquiring beach property/access routes currently under private ownership for public access and beach recreation purposes. A specific component of this assessment shall be the identification of measures that could be implemented by the Pebble Beach Company to offset the loss of sand and recreational beach area attributable to the 5th Hole seawall. The method and appropriateness of carrying out such measures shall be subject to a future condition compliance hearing by the Coastal Commission. The plan shall also identify those parts of the course that are considered structural and non-structural in order to limit future armoring of non-structural course elements. All future Pebble Beach Golf Links shoreline armoring proposals will be required to be consistent with this plan.

Within one (1) year of project approval, the applicant shall submit a comprehensive scope of work for Executive Director review and approval that outlines the applicant's proposed methodology for completing the required plan. The scope of work shall detail the studies and techniques that shall be used by the permittee to:

a) Identify areas that are threatened by erosion in both short (1-4 years) and medium to longer terms (5 to 20 years) and assess each PBGL shoreline parcel based on factors including, but not be limited to, geology, wave conditions, localized erosion trends, average annual erosion rates, and sea level rise;

b) Identify factors contributing to erosion at each PBGL shoreline parcel, including areas where bluff top erosion could occur due to irrigation or drainage;

c) Identify existing areas of armoring and areas where additional armoring is anticipated in the immediate vicinity as well as downcoast at Carmel Beach;

d) Identify locations for beach and bluff profiles along the PBGL shoreline to assess changes in the beach width and volume as a result of existing shoreline erosion;

e) Identify environmentally sensitive habitat areas where encroachment of structures is to be avoided;

f) Evaluate options for relocating or redesigning facilities or portions of facilities as alternatives to armoring;

g) Analyze the cumulative impacts of existing and anticipated shoreline armoring along the PBGL on sand supplies and coastal access and recreation opportunities; and

h) Identify, evaluate, and design mitigation measures to avoid and minimize such impacts, among other ways by implementing beach replenishment program(s), removing seawalls, and acquiring new beach access and recreation opportunities.

In addition to the information specified above, the final Shoreline Management Plan shall also include the following:

- Requirements for monitoring and maintenance of shoreline protection devices with provisions for the removal of ineffective or hazardous protective structures, as well as programs to address beach replenishment, sand supply, and loss of recreational beach area;

- Requirements for ongoing monitoring of those areas threatened by erosion in the short-term (less than 4 years from the time of monitoring) to provide an opportunity to address the identified erosion threat through the Plan, and to avoid additional emergency permit requests; and,

- Provisions to avoid the need for and minimize impacts of emergency armoring, such as: procedures for field inspections before and after storm seasons; guidance for types of preferred temporary structures; and, provisions for coordination with all relevant regulatory agencies.

4. **Confirmation of Construction in Conformance with Approved Plans.** The Permittee shall submit a copy of as-built plans with the signature of the contractor and geotechnical engineer that confirms that the project has been constructed according to approved plans. The Permittee shall also submit photo documentation of the project following completion.

5. **Monitoring, Maintenance and Reporting Requirements.** WITHIN 3 MONTHS OF COMPLETION OF CONSTRUCTION, the applicant shall submit, for Executive Director review and approval, a long-term monitoring and maintenance plan for the 5th green seawall. The Monitoring and Maintenance Plan shall be based on comparison with the as-built plans, and the applicant shall be responsible for carrying out the requirements of the plan, which shall include the following:

   A. Annual Beach and Bluff Profiles. The Permittee shall conduct topographic surveys of at least 9 beach and bluff profiles at Stillwater Cove (between Stillwater Pier and Arrowhead Point), as shown in Exhibit I.2, twice annually (in March and August, to measure the winter and summer beach profile) for the first five years following construction, and then annually each summer. One profile should be located in front of the seawall, as well as one within 20 feet upcoast (north) and two downcoast (south) of the ends of the seawall. An additional 5 profiles shall be located no more than 200 feet apart upcoast of the seawall to the Stillwater Cove pier. Reports shall be submitted to the Executive Director every year for the first five years, and then every five years, for the life of the structure, to identify changes to the beach width and volume following construction of the 5th green seawalls. Reports shall be submitted no later than March 30th of the following year. Surveys shall be conducted within a two-week window of the previous year's survey, to make comparisons of beach width under the same wave climate and climatic conditions over time. Profiles shall be tied into survey monuments, constructed and surveyed in to establish fixed reference points from which any subsequent change can be recorded.

   B. Nearshore Habitat Monitoring. A nearshore habitat monitoring plan shall be developed and implemented, to establish baseline conditions, and monitor any change in conditions over time. The habitat monitoring shall be scheduled to coincide with beach and bluff monitoring, with similar reporting requirements.

   C. Long-Term Seawall and Bluff Monitoring. The permittee shall monitor the physical condition of the new seawall and adjacent bluffs annually, with reports submitted to the Executive Director every five years, for the life of the structure, to evaluate ongoing bluff erosion, and identify any needed maintenance.

D. Future Seawall Maintenance. This permit allows future seawall maintenance that involves recoloring of the seawall surface, minor refacing (e.g., patching, texturizing and repair of areas less than 100 square feet) or replanting of native vegetation, as long as it does not require heavy equipment on the beach or have the potential to impact sensitive coastal resources. Prior to undertaking such maintenance, the permittee shall submit a description of the proposed maintenance activities for the review and approval of the Executive Director. All other maintenance activities shall require a separate coastal development permit or waiver thereof.

E. Future Lateral Access Feature. Each monitoring report required by subsection A of this condition shall also assess and report on the seawall's effect on lateral access. If and when the monitoring reports, or the Executive Director, determines that the seawall is interfering with lateral coastal access, the permittee shall submit an application to amend this permit to add a lateral access feature and/or modification of the seawall that will allow for continued lateral access along the Stillwater Cove shoreline (e.g., stairs at both ends of the seawall with a bluff-top path along the seawall). The application for the amendment and associated plans shall be submitted within 60 days of the monitoring report identifying that the seawall is interfering with lateral access, or within 60 days of the Executive Director's written determination that such a lateral access feature is needed to avoid interference with lateral coastal access, whichever comes first.

6. Carmel Beach Access Improvements.

A. Trail Improvement Plan. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Permittee shall submit two sets of a Trail Improvement Plan (in both full-size and 11" x 17" formats with a graphic scale) to the Executive Director for review and approval. The Trail Improvement Plan shall provide for a signed, unobstructed public access trail for pedestrian/hiking use between Carmel Way and the sand at Carmel Beach, along the general alignment of the historic Redondo Trail connection between Del Monte Forest and the sandy beach. The Trail Improvement Plan shall, at a minimum, provide for all of the following:

1. **Trail Design.** The trail shall be aligned and designed to avoid interference with golf course play to the maximum degree feasible, and in substantial conformance with either of the alignments shown on Exhibits M.1 and M.2 (i.e., either along Alignment A - from Point A to Point C1, or, if possible through negotiations with the adjacent property owner, along Alternate Route B - from Point A to Point B and then to Point C2). Trail tread width may vary in relation to the grade of the terrain and other physical constraints, but shall be consistent with Monterey County LCP trail standards provided in the Del Monte Forest LUP. Any necessary stairway segments shall be a minimum of 4 feet wide between railings, and shall be built to general engineering and aesthetic standards for such shoreline stairways (including being designed to withstand storm events), consistent with LUP standards.

2. **Trail Surface.** The character of the trail is intended to remain a natural-surface hiking trail, except where aligned on existing paved surfaces.

3. **Pedestrian Safety.** The Trail Improvement Plan shall incorporate measures to protect trail users from errant golf balls. Appropriate design measures include, but are not limited to, installing the trail below the natural grade of the adjacent golf course (e.g., slightly down the side of the slope above Pescadero Creek), using short berms to separate golf play areas from trail, installing protective fencing or walls (including minor retaining walls as necessary), installing arbor-type overhead structures, installing appropriate native vegetation for screening the trail from adjacent recreational and residential uses, or a combination of such measures. In all cases, structures necessary for pedestrian safety shall include integral landscaping, shall be designed to soften views of any protective structures as seen from the trail and adjacent recreational and residential uses, and shall be installed consistent with LUP trail standards.

4. **Landscape Screening.** Plantings used for landscape screening shall be limited to native Monterey cypress and non-invasive species native to the lower Pescadero Creek area that are from local (to Pescadero Creek) stock, including locally collected propagules (seeds, cuttings, etc.) as available. In addition, any landscaping below the break in slope at Pescadero Creek itself shall also be riparian species. The plan shall be submitted with evidence that each species proposed meets these requirements (including written verification from a botanist or other landscape professional familiar with native plant species), and information on the proposed source for the plant materials. The plan shall clearly identify in plan view the number, type, size, extent and location of all non-invasive native plant materials to be used, and shall provide for a permanent irrigation system designed to ensure that the installed landscaping is successful. The use of non-native plant species is prohibited, and the permittee shall be responsible for removing any non-native plant species that may become established within approved landscaping areas.

5. **Signage.** The submitted Trail Improvement Plan shall identify the location, size, design and content of signs used, consistent with the following objectives. Signs shall be placed that clearly indicate that the trail is available for general public use. These signs shall, at a minimum, be located at both ends of the trail (i.e., at its intersection with Carmel Way, and at Carmel Beach) and every 300 feet along the trail, and shall be visible from both directions. The signs shall include the following text: "Public Accessway" (or equivalent, subject to review and approval by the Executive Director). At Carmel Way, a directional sign, at pedestrian scale, shall indicate the way to "Carmel Beach." Interpretive/educational signage describing the historic use of the Redondo Trail and its relationship to the Del Monte Forest Trail System shall be located along the trail. Additionally, signs describing hiker etiquette, and safety measures in relationship to the adjacent golf usage, may be allowed where necessary, or such language combined with directional or interpretive signage as necessary. All signs shall be adequately sized and placed as to allow them to be easily read by trail users, but not so they distract from the trail experience by being overly large or degrading views. Signs shall be made up of materials and colors consistent with the trail character and Pescadero Creek aesthetic.

B. Other Necessary Permits. PRIOR TO TRAIL CONSTRUCTION, the Permittee shall obtain any other necessary approvals for development (e.g., Monterey County Planning Department).

C. Trail Construction. WITHIN TWO YEARS OF PERMIT APPROVAL, the Permittee shall complete construction of the trail between Carmel Way and Carmel Beach in accordance with the approved Trail Improvement Plan. Construction may be accomplished in phases as necessary, provided that through access from Carmel Way to Carmel Beach is complete and open to public use within 2 years of approval of the project. All requirements of this condition and the approved Trail Improvement Plan are enforceable components of this coastal development permit. The Permittee shall undertake development in accordance with the approved Trail Improvement Plan. All components of the project shown in the approved Trail Improvement Plan shall be constructed and installed. Any proposed changes to the approved Trail Improvement Plan shall be reported to the Executive Director. No changes to the approved Trail Improvement Plan shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is necessary.

D. Maintain Trail Improvements. By acceptance of this permit, the Permittee acknowledges and agrees, on behalf of itself and all successors and assigns as follows:

1. **Public Use.** Trail use shall be limited to pedestrian/hiking use only (i.e., bicyclists, equestrians and motorized vehicles will not be allowed). The trail shall be available for general public use in perpetuity, and shall not be obstructed in any way, except that the Permittee shall have the right to temporarily close the trail (using signs and temporary fencing) during periods of major golf events at the Pebble Beach Golf Links (such as the AT&T Pebble Beach National Pro-Am and the U.S. Open Golf Championship) consistent with the 17-Mile Drive Public Use Agreement between Monterey County and the Pebble Beach Company.

2. **Maintenance.** The Permittee shall maintain the trail, landscaping, irrigation, and all associated improvements shown on the approved Trail Improvement Plan (and any Coastal Commission amendments thereto) in a structurally sound manner and in their approved state in perpetuity. Vegetation growing on or adjacent to trail, that might obstruct use, shall be cleared at least once per year, or more often as necessary to maintain a minimum 4-foot cleared width at shoulder height.

3. **Other Development Prohibited.** Development, as defined in Section 30106 ("Development") of the Coastal Act, shall be prohibited on the trail itself and/or within ten feet of the trail other than: (1) appropriately permitted construction activities associated with construction, maintenance, and/or repair of the trail, landscaping, irrigation, and associated structures shown on the approved Trail Improvement Plan; (2) development authorized by an amendment to this coastal development permit (such as minor additional protective structures, directional and interpretive signage, etc.); (3) standard golf course maintenance, improvement, and repair measures, provided it does not obstruct general public access use of the trail, except for temporary closure during major golf events, consistent with Special

Condition 6.D.(1) above; and (4) lawfully permitted restoration activities within the Pescadero Creek riparian corridor.

E. Revised Gate Handout. WITHIN SIX MONTHS OF TRAIL COMPLETION, the Permittee shall submit a revised Del Monte Forest gate handout to the Executive Director for review and approval. The revised gate handout shall be consistent with the requirements of all previous coastal development permits issued the Permittee, and consistent with the Monterey County certified Local Coastal Program. The revised handout shall clearly and accurately identify all public access amenities within Del Monte Forest (including all trails, parking areas, destinations, facilities, etc.), including the reconstructed trail from Carmel Way to the sand at Carmel Beach, at a scale and in a design that is easily understood. At the Permittee's discretion, the revised gate handout may be developed and submitted to the Executive Director as a separate public access insert to the gate handout provided it is clear that such insert is to be distributed (with the rest of the gate handout) to all coastal visitors entering Del Monte Forest.

7. Archaeological Resources. Should archaeological resources be discovered at the project site during any phase of construction, the Permittee shall stop work until a mitigation plan, prepared by a qualified professional archaeologist and using accepted scientific techniques, is completed and implemented. Prior to implementation, the mitigation plan shall be submitted for review and approval by the State Historical Preservation Office and for review and approval by the Executive Director of the Coastal Commission. The plan shall provide for reasonable mitigation of the archaeological impacts resulting from the development of the site, and shall be fully implemented. A report verifying compliance with this condition shall be submitted to the Executive Director for review and approval, upon completion of the approved mitigation.

8. Other Agency Review and Approval. PRIOR TO ISSUANCE OF PERMIT, the Permittee shall submit to the Executive Director evidence of project approval, or a statement that no review or approval is required from the following agencies:

A. CDFG Review. The Permittee shall provide evidence that the California Department of Fish and Game (CDF&G) has reviewed the project for potential impacts to marine mammals, invertebrates, and seabirds in the area, or an indication that no review is required.

B. Conformance with Monterey Bay National Marine Sanctuary Requirements. The Permittee shall submit to the Executive Director evidence that the Monterey Bay National Marine Sanctuary (MBNMS) has reviewed the project for potential impacts to resources or waters of the Monterey Bay National Marine Sanctuary and that the project conforms with any MBNMS requirements, or an indication that no such review is required.

C. Conformance with USACOE Requirements. The Permittee shall submit to the Executive Director for review a copy of any USACOE permit issued for this project, letter of permission or evidence that no Corps permit is necessary.

9. **Revisions and Amendments.** The Permittee shall undertake development in accordance with the approved final plans identified in Special Condition 1. Any proposed changes to the approved final plans (including any changes in coverage or design) shall be reported to the Executive Director for review. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that the change is immaterial or that no amendment is necessary.

10. **No Future Seawall or Shoreline or Bluff Protective Device.** By acceptance of this Permit, the applicant agrees, on behalf of itself and all successors and assigns, that no additional bluff or shoreline protective device(s) shall ever be constructed to protect the subject parcel, including, but not limited to, the tee and fairway, in the event that the parcel is further threatened with damage or destruction from waves, erosion, storm conditions, bluff retreat, landslides, or other natural hazards in the future. By acceptance of this Permit, the applicant hereby waives, on behalf of itself and all successors and assigns, any rights to construct such devices that may exist under Public Resources Code Section 30235.

11. **Assumption of Risk, Waiver of Liability and Indemnity Agreement.** The Permittee acknowledges and agrees, on behalf of itself and all successors and assigns: (i) that the site is subject to hazards from episodic and long-term bluff retreat and coastal erosion, tidal scour, wave and storm events, bluff and other geologic instability, and the interaction of same; (ii) to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; and (v) that any adverse effects to property caused by the permitted project shall be fully the responsibility of the property owner.

12. **Deed Restriction.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and approval, documentation demonstrating that the applicant has executed and recorded against the parcel governed by this permit a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (2) has imposed the Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The deed restriction shall include a legal description of the entire parcel or parcels governed by this permit. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

3. Recommended Findings and Declarations

A. General Project Location & Background

The Pebble Beach Golf Links (PBGL) is an oceanfront golf course along Carmel Bay in Stillwater Cove, between Pescadero Point and Pescadero Creek, just north of the City of Carmel-by-the-Sea (See Exhibits A, B and C). The shoreline in this area is composed of marine terrace deposits that sit atop fractured bedrock that form the coastal bluffs. Narrow, white sandy beaches front the bluffs, with sand elevations usually higher than 5 feet MSL (mean sea level); however, during large winter storms, the beach sand can be scoured down to bedrock and the base of the bluffs exposed to full wave attack. The coastal bluffs reach elevations of up to 48 to 50 feet above MSL. The Pebble Beach Beach Club is located immediately west of the Stillwater Cove Pier, and along with the 17th hole, occupies the western end of Stillwater Cove. The 5th Hole is on a 1.95-acre parcel, created by subdivision and lot line adjustment of an earlier 5.7-acre residential parcel, located between the Stillwater Cove Pier and Arrowhead Point. The hole is bordered by a ravine on the west (which separates it from the 4th hole), and a golf cart path and residential property to the north, a row of cypress trees that border the green at the eastern end of the hole, and the coastal bluff and beach along the south.

Background

The Pebble Beach Golf Links is an historic golf course, originally designed by Jack Neville and Douglass Grant in the early 20th Century. The Course was opened for play on February 22, 1919, and was ranked as the number one publicly accessible course in the United States by Golf Digest in 2003-2004. According to the applicant, the area that is now the PBGL was originally considered for residential development. Some oceanfront lots had been sold before plans for developing the golf links were formalized. The Pebble Beach Company was able to purchase back some of the lots, but the owner of the 5.7 acre shorefront lot where the 5th Hole now sits would not sell back the lot, and so the PBGL course was designed and developed around it (see Exhibit D.1). It was only recently, in 1998, that the Pebble Beach Company was able to acquire the lot and relocate the 5th hole to the shoreline location originally envisioned by subdividing the lot into 3 parcels (one shoreline parcel and two inland parcels) and moving residential development to the two new inland parcels (see Exhibit D.2).

The new 5th hole was designed by renowned golfer, Jack Nicklaus, in 1997 to match the original 1916 idea for an oceanfront hole, and to aesthetically fit into the natural landscape of the property. The 5th hole was then constructed in 1998 under a permit issued by Monterey County Planning and Building Inspection Department (965322; CDP# 3-MCO-97-103).

The 5th hole includes the tee complex, the fairway, and the 5th green complex (see Exhibits E.1 and E.2). The 5th tee complex includes a pro tee located west of the ravine, and a main tee east of the ravine. Two other smaller tee areas were also designed for shorter distance hitters (the forward tee), and for a more challenging shot (the upper tee). Individual tee boxes located adjacent to the ravine bluff were constructed with 4 to 22-foot high retaining walls, supported with deep drilled piers where the walls are 10 feet or higher. The 5th green complex includes the green, green surround and the bunker complex

(sandtraps), and all surface and subsurface drainage improvements (curtain drains, trench drains, drop inlets and piping) that have been constructed to direct drainage off of the green and away from the bluff top. The 5th hole is bordered on the inland side by a 10-foot wide cart path that borders the adjacent residential parcel to the east. The main tee box is located about 16 to 17 feet seaward of the cart path, with a grade break of about 3 to 4 feet in elevation, and so requires a set of about 5 steps to reach the tee.

Prior to development of the new 5th hole, there was concern about erosion along the ravine located between the 4th and 5th holes. A geotechnical report was prepared (by Haro, Kasunich & Associates, HKA, June 2, 1997) to provide engineering conclusions regarding the stability of the terrace deposits and underlying bedrock that make up the coastal bluff and drainage gully adjacent to the proposed new tee boxes, green, bunkers, private beach access stairway,[2] golf cart bridge, cart path and necessary retaining walls. The geotechnical report indicated that slope stability analyses of the bluffs in the ravine area showed that the ravine slopes were stable under static loads, but could incur rotational failures under seismic or saturated conditions. As such, the report recommended deep drilled piers and piles for the pedestrian bridge and tee box retaining walls 10 foot or higher.

The HKA 6/97 report stated that ongoing coastal erosion of the oceanfront bluffs was a concern at the time, noting recent rotational landsliding had occurred, but indicated that the existing damaged stairs would be demolished and grading would help to improve the stability of the edge of the unstable coastal bluffs. The report also noted that surface and subsurface drainage improvements and erosion control landscaping were also incorporated into the grading plan, and that with such efforts, "the immediate use of seawall[s] and retaining walls along the coastal bluff will be avoided." Surface drainage improvements included curbs along the golf cart path and catch basins located along the fairway, with discharge over the bluff "in a controlled manner." Subsurface drainage improvements included lateral hydroaugers in the bluff where seepage and slumping had occurred (east of the stairway under the green), and vertical trench drains within and below the green and bunker complex (with approximately 270 linear feet of subdrain trench constructed under the green and toward the west side of the fairway approach). No other information was given in the HKA 6/97 report on long-term shoreline erosion rates, or on an estimate of how long new development would be safe from ongoing shoreline erosion in this location. In the County's coastal development permit for the project (PLN965322; CCC permit tracking number 3-MCO-97-103), the county adopted a finding (Finding 15) that the project was consistent with LCP policies dealing with development in hazardous areas.

Notwithstanding conclusions of the earlier geotechnical conclusions that "the immediate use of seawalls and retaining walls along the coastal bluff" would be avoided, and drainage improvements and erosion control efforts undertaken during construction of the new 5th hole, ongoing coastal erosion has occurred along the coastal bluffs beneath the 5th tee and green. Strong winter storms in December 2002 and January 2003 scoured beach sands to bedrock and allowed direct wave attack against the base of the coastal bluff, which has accelerated erosion of the bluff and over steepened the slope beneath the 5th tee, and has undermined the area below the 5th green. In January 2004, a heavy rainstorm event caused a 1

[2] Which, according to the applicant, were to remain for private use based on a clause in the purchase agreement reached between the Pebble Beach Company and the residents.

to 3-foot thick debris flow type landslide to occur outboard of the 5th tee, resulting in undercutting of a tree stump along the edge of the bluff, within about 15 feet of the upper tee. Wave attack from the December and January storms was also the primary cause of slump sliding and the formation of a broad slide scarp directly below the 5th green. Because of the geologic structure of the area, secondary causes of sliding in the 5th green area were found to be groundwater seepage and saturated soils from perched groundwater retained at the top of the bedrock contact.

As a result of the landslide at the 5th green, an emergency permit (CDP# 3-03-111-G) was granted by the Coastal Commission to place temporary rip-rap revetment against the base of the bluff, and to spray a thin layer of shotcrete to cover the eroded gully created by the landslide in order to protect the green and prevent further erosion of exposed, unconsolidated terrace deposits in the upper bluff. On May 12, 2004, the Pebble Beach Company submitted an application for a follow-up permit (3-04-030) to construct two seawalls at the base of the coastal bluffs below the 5th tee and 5th green that would replace the temporary structure in order to halt ongoing coastal erosion/bluff recession in these areas. The Commission held a hearing on the project on April 15, 2005, and due to a variety of concerns, the Pebble Beach Company withdrew their CDP application before the Commission held a final vote. As a result of this withdrawl, the Pebble Beach Company was out of compliance with conditions of original emergency permit 3-03-111-G that required removal of the temporary shoreline protection structures.

The applicant is thus proposing the current project as a follow up to this emergency permit, and to respond to ongoing coastal erosion experienced at this location. The 5th tee seawall has been removed from the project, and therefore, the current application proposes a seawall for the 5th green only. The applicant found that they could relocate the 5th tee complex landward of its present position to avoid the need for shoreline armoring. This planned retreat scenario had been previously rejected by the applicant as infeasible, but further examination of the shoreline and consideration of the dynamics of the hole have led the applicant to conclude that relocation is a feasible alternative. Therefore, as described below, the current application requests authorization to construct a seawall to protect the 5th green only.

B. Project Description

The Pebble Beach Company proposes to construct one seawall at the base of the coastal bluffs below the 5th green of the PBGL to prevent this area from being undermined due to coastal erosion/bluff recession (see Exhibits F, G and H). The seawall, as proposed, would be 160 feet long with an additional 22 linear feet of buried wing walls, and would vary from 14 to 22 feet in height. It would be a vertical seawall, keyed into the bedrock, and set within 4 feet of the base of the bluff. The vertical seawall would be backfilled with concrete to a height just below the top of bedrock, then gravel for drainage, and then backfilled with engineered soil, and the bluff area above the seawall landscaped using native plants and grasses to re-create a vegetated 2:1 slope (see Exhibit G).

The seawall would be constructed using reinforced concrete with steel tiebacks and would be covered with artificial stone fascia, made from colored, texturized concrete designed to match and blend with the adjacent geologic strata. Gravel and piping will be incorporated into the design to allow drainage of the

overlying marine terrace deposits. The drain outfalls would be hidden under the stone fascia, beneath an overhanging ledge designed into the face of the seawall.

The applicant acknowledges that as designed, the 5th green seawall may still experience overtopping due to wave run-up or exposure of the slope to rainfall, and so foresees the likelihood that the project would require ongoing monitoring and future repair. The project also incorporates existing surface and subsurface drainage improvements, erosion control measures and ongoing turf management at the 5th hole, to minimize surface and subsurface water discharge and erosion. The integrated pest management program uses drought, insect and disease resistant grasses and monitors turf conditions regularly to minimize water, pesticide and fertilizer use on the golf course, as well as irrigation and drainage strategies that direct water away from the bluff face. Finally, the design and location of the buried wing walls are also intended to minimize the need for expansion due to potential erosional outflanking.

C. Previously Approved Project & Related Commission Actions

Various permit and amendment descriptions related to this project, as well as other shoreline protection structures in the PBGL, including CDP numbers and dates of approval, are listed in Table 1. The Commission and the County have conditioned the previous permits and amendments in order to address coastal hazards, and to protect marine resources, visual resources, water quality, environmentally sensitive habitats, and public recreation and coastal access.

Table 1. Previously Approved Shoreline Projects in Pebble Beach Golf Links.

Permit Number	Name	Project Description
Monterey County Permit 965322 (CDP# 3-MCO-97-094) (MS approval 10/9/97) (APN 008-401-021, -020, & 008-393-011)	Pebble Beach Company – Minor Subdivision of 6.5 acre parcel (Jenkins parcel)	Subdivision to allow division of 5.7-acre parcel into two inland parcels of 1.85 acres and 1.87 acres, and an oceanfront parcel of 1.95 acres.
Monterey County Permit 965322 (CDP# 3-MCO-97-103) (PC approval 11/19/97) (APN 008-401-021)	Pebble Beach Company - Pebble Beach Golf Links New 5th Hole	Permit to relocate the 5th hole from inland location to newly subdivided 1.95-acre oceanfront parcel; demo/ removal of existing residential dwellings, relocation of log cabin, grading for new 5th hole, new bridge over ravine, private beach access stairway, bluff stabilization with surface and subsurface drainage improvements, slope recontouring, erosion control matting and revegetation; construction of stone retaining walls for tee boxes.

Permit Number	Name	Project Description
Monterey County Permit 030508 (CDP# 3-MCO-03-412) (approved 10/28/03) (AP 008-401-020, 008-401-021)	Pebble Beach Company – Monterey County Emergency Permit for 5th Hole Revetment	County permit for emergency work – later identified that it needed Coastal Commission permit
CCC Emergency Permit # 3-03-111-G (approved 12/10/03) (AP 008-401-020, 008-401-021)	Pebble Beach Company - CCC - 5th Hole Emergency Rip-Rap Revetment	Emergency permit to place temporary rip-rap and shotcrete cove in eroded gully adjacent to the 5th green
CDP# 3-83-197 (approved 10/12/83) (APN 008-401-020, 008-411-019, 008-411-020)	Pebble Beach Company - PBGL 17th green, 18th tee	Five different shoreline and bluff stabilization projects along Stillwater Cove shoreline including 400-450 tons of rock fill, and 500 linear feet of concrete wall to protect structural elements of the green and tee
CDP# 3-83-197-A1 (re-filed as 3-85-25) (approved 5/9/85) (APN 008-401-020, 008-411-019, 008-411-020)	Pebble Beach Company – Beach Club	Amended permit to include repair and protection of undermined clubhouse footings with 15 tons poured concrete & 30 tons of rock revetment – required demo of pier and installation of beach access ramp/stairway
CDP# 3-83-197-A2 (approved 3/25/87) (AP 008-381-009, 008-393-011, 008-401-020, 008-411-019)	Pebble Beach Company – 4th fairway & 18th fairway	Coastal bluff stabilization – extends shoreline protection by construction of 1,250 ft of concrete fabriform & rock face shoreline structure (at four locations along 4th and 18th fairways)
CDP# 3-83-197-A3 Immaterial amendment (approved 10/10/96) (AP 008-401-020, 008-411-019, 008-411-020)	Pebble Beach Company – 17th green/18th tee and 18th green	Amended to plug four areas of permitted wall along 17th green & 18th tee with concrete, regrout and fill voids of adjacent pre-existing wall along 18th green with concrete.
CDP# 3-83-197-A4 Immaterial amendment (approved 2/6/97) (AP 008-401-020, 008-411-019, 008-411-020)	Pebble Beach Company – 17th green and 18th tee	Repair, replacement and extension of existing seawalls, reconfiguration of existing rip-rap revetment structures and ongoing maintenance as required
CDP #3-96-091-DM (approved 8/15/96) (APN 008-411-020)	Pebble Beach Company – Beach Club seawall repairs	Repairs to existing rip-rap rock revetment
CDP # 3-96-101-DM (approved 9/13/96) (APN 008-381-009)	Pebble Beach Company – PBGL 9th & 10th holes	Excavate approximately 8 exploratory test pits at base of coastal bluff near 9th and 10th greens.

Permit Number	Name	Project Description
Monterey County #PLN970461 (CDP #3-MCO-98-072) (approved 3/25/98) (APN 008-381-009)	Pebble Beach Company – PBGL 9th and 10th Holes	Four bluff protection structures/ seawalls. Two at 9th green: 10-ft high, 182-ft long upper retaining wall; and 277-ft long lower seawall with artificial rockwork surface. Two at 10th green: 10-ft high, 248-ft long upper retaining wall; and 288-ft long lower seawall with artificial rockwork surface.
CDP # 3-98-060-DM (approved 7/9/98) (APN 008-381-009)	Pebble Beach Company – PBGL 9th and 10th holes	Equipment operations on approx. 30,000 sf area of beach as needed to support bluff stabilization efforts at 9th and 10th holes
CCC Emergency Permit #3-05-003-G (approved 1/20/05) (APN 008-411-019)	Pebble Beach Company – PBGL 18th hole fairway	Emergency replacement of failed rock revetment (approximately 35-40 feet in length along 18th fairway) with temporary vertical seawall constructed of plywood sheeting, helical screws and colored, textured shotcrete facing.

D. Standard of Review

Coastal development permit jurisdiction for lands above the ambulatory mean high tide line was granted to Monterey County in 1988 following certification of the Monterey County Local Coastal Program. The Commission, however, retains jurisdiction below the ambulatory mean high tide elevation, in public trust lands, and areas of deferred certification.

While much of the proposed seawall extends above the mean high tide line, the foundation lies below mean high tide elevation. Since the foundation of the seawall is a main component that supports the rest of the wall, the entire wall and backfilled slope are thus considered to be within the Coastal Commission's original jurisdiction. The standard of review for new development in the Commission's original jurisdiction area is the Coastal Act. The Monterey County certified LCP, which includes the Del Monte Forest Land Use Plan (LUP) and Coastal Implementation Plan (CIP), also has specific requirements for the Pebble Beach Area. While not the standard of review in this case, the Monterey County LCP, and specifically policies and regulations included in the Del Monte Forest LUP and CIP, may serve as guidance for development in this area of Pebble Beach.

E. Coastal Development Permit Determination - Issues Analysis

1. Geologic Hazards

a. Allowing Shoreline Structures

The Pebble Beach Company has applied for a seawall to protect the 5th Hole green of the PBGL course due to erosion threats. The coastal bluff that fronts the 5th Hole has eroded due to wave attack during heavy winter storms that has scoured away beach sand, undermined the bluff, and caused landsliding and over-steepening of the bluff face. As a result, the bluff beneath the 5th green complex is currently protected with temporary riprap revetment and shotcrete due to recent landsliding. Coastal erosion, which is expected to continue, has now put the 5th green complex at risk from ongoing shoreline erosion and subsequent bluff recession.

b. Regulatory Policies

Coastal Act Section 30235 addresses the use of shoreline protective devices:

> ***Section 30235.*** *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.*

Coastal Act Section 30106 defines development as:

> ***Section 30106.*** *"Development" means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).*
>
> *As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.*

Coastal Act Section 30253 addresses the need to ensure long-term structural integrity, minimize future risk, and to avoid landform altering protective measures in the future. Section 30253 provides, in applicable part:

> ***Section 30253.*** *New development shall:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

c. Analysis of Consistency with Applicable Policies

1. Allowing Shoreline Armoring

Coastal Act Section 30235 acknowledges that seawalls, revetments, cliff retaining walls, groins and other such structural or "hard" methods designed to forestall erosion also alter natural landforms and natural shoreline processes. Accordingly, with the exception of new coastal-dependent uses, Section 30235 limits the construction of shoreline protective works to those required to serve coastal-dependant uses, or to protect existing structures or public beaches in danger from erosion, provided they are designed to eliminate or mitigate adverse impacts on shoreline sand supply. The Coastal Act provides these limitations because shoreline structures can have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, alteration of natural landforms and overall shoreline beach dynamics on and off site which may ultimately result in the loss of public beach. The Commission must always consider the specifics of each individual project, but under the standards established by Section 30235, prefers alternatives that avoid the necessity for shoreline structures that armor the shoreline and alter the natural dynamics.

The Applicant proposes shoreline armoring on approximately 182 linear feet of the coastal bluff that fronts the 5th green complex to protect existing structural elements, integral parts of the larger PBGL course, that are threatened by erosion. The site supports coastal recreational uses by providing a publicly accessible golf course (and subsequent coastal access) along Stillwater Cove.

A. Existing Structure

Under Section 30106 of the Coastal Act, structures are defined as "any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line." The PBGL course is an historic golf course with numerous structural and non-structural components. The course includes substantial development and structural elements such as the pro shop/clubhouse, snack building, restrooms, roads, cart paths, walkways, and under- and aboveground infrastructure and utilities for the various tees and greens (including drainage and irrigation improvements, tee boxes, and retaining walls). Non-structural elements of the course include areas of landscaping and lawns, which, although they may contain irrigation components that may qualify as structures, are not considered structures in

and of themselves by definition under the Coastal Act.

A seawall is being proposed to reduce shoreline erosion that threatens both structural and non-structural elements of the 5th green. The 5th green complex includes structural components such as the drainage improvements (e.g., trench drains, lateral hydroaugers, vertical sheet drains, drop inlets and drain piping) and irrigation infrastructure, and non-structural elements such as the aboveground green, green surround, and bunkers (sand traps). The 5th green complex is an integral component of the 5th hole, and of the larger PBGL course, which includes substantial development and infrastructure. Although certain elements of the green cannot be considered structural by definition under the Coastal Act, those components that are considered structural warrant protection under Section 30235.

B. Danger from Erosion

The Coastal Act allows shoreline armoring to protect existing structures in danger from erosion, but it does not define the term "in danger." There is a certain amount of risk in maintaining development along a coastline that is actively eroding and subject to violent storms, large waves, flooding, earthquakes, and other hazards. Within the PBGL coastal environment, shoreline erosion, both long-term and episodic, results from winter storm waves, which first cause beach scour, removing sand to the bedrock, and then basal bluff attack, which serves to undermine and over-steepen the bluff face, causing landsliding or collapse of the geologic materials that make up the bluff. Such risks can be exacerbated by other factors such as sea level rise and localized geography that can focus storm or tidal energy along particular stretches of coastline. As a result, all development along the immediate coastline is in a certain amount of "danger." It is a matter of the degree of threat that distinguishes between danger that represents an ordinary and acceptable risk, and danger that requires shoreline armoring per 30235. Lacking Coastal Act definition, the Commission's long practice has been to evaluate the immediacy of any threat in order to make determinations as to whether an existing structure is "in danger." While each case is evaluated based upon its own particular set of facts, the Commission has generally interpreted "in danger" to mean that an existing structure would be unsafe to occupy or use within the next two or three storm season cycles (generally, the next few years) if nothing were to be done (i.e., in the no project alternative).

The Applicant has submitted the following geotechnical evidence to support the allegation that the 5th green is in imminent danger and is an existing structure that qualifies for shoreline protection:

- *Geotechnical Engineering Study for Pebble Beach Golf Links New Fifth Hole*, prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated June 1997 (HKA 6/97);

- *Coastal Protection Alternatives Evaluation, Pebble Beach Golf Links 5th Green and Tee*, prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated May 5, 2004 (HKA 5/04);

- *Supplemental Geotechnical Investigation for Coastal Bluff Repair, Pebble Beach Golf Links Fifth Hole Tee and Green*, prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated June 2004 (HKA 6/04);

- *Letter Report regarding Pebble Beach Golf Links 5th Tee and 5th Green Coastal Bluff Protection* (sent in response to Filing Status Letter), prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated August 10, 2004 (HKA 8/04);

- *Letter Report regarding Pebble Beach Golf Links 5th Green Coastal Bluff Protection*, prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated May 26, 2006 (HKA 5/06a);

- *Letter Report regarding Pebble Beach Golf Links Coastal Protection Alternatives*, prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated May 26, 2006 (HKA 5/06b); and

- *Letter response to issues raised in California Coastal Commission letter dated June 29, 2006* (sent in response to Filing Status Letter), prepared for Pebble Beach Company by Haro, Kasunich & Associates Inc., dated July 28, 2006 (HKA 7/06);

The Applicant's geotechnical consultants and engineers conclude that the 5th Tee complex and 5th Green complex are in danger from erosion as that term is understood in the Act. The Forward Tee and Upper Tee are the areas that are at immediate risk from continued shoreline erosion and bluff recession in the area of the 5th Tee complex. The HKA 5/04 report states that bluff recession would result in the irreparable loss of tee area that is critical to golf play at this internationally known public golf course. However, as described above, the applicant is no longer proposing a seawall for the 5th tee and has adopted a planned retreat scenario for the tee so as to avoid the need for shoreline armoring.

The 5th green complex is also at risk from continued shoreline erosion, and currently has temporary shoreline protection (rip-rap revetment and shotcrete slope) due to the most recent landsliding that occurred this last winter (December 2003 and January 2004).

The geologic setting of the PBGL 5th Hole is described in the original and supplemental geotechnical reports prepared for the project by Haro, Kasunich and Associates (HKA 6/97, and HKA 6/04). According to the HKA 6/04 report, the coastal bluff adjacent to the 5th green complex is about 40 to 44 feet high. The coastal bluff is comprised of near vertical sandstone with cemented conglomerate bedrock at the base of the bluff, extending from the toe at about 2 feet MSL up to about 13 feet MSL, and approximately 30 to 35 feet of terrace deposits which overlie the bedrock. The terrace deposits are made up primarily of clayey sand.

At the 5th green complex, the bedrock face is near vertical with terrace deposits above sloping at about an average gradient of 35 degrees. Perched groundwater has also been observed above the bedrock contact, saturating the terrace deposits from an elevation of about 11 feet MSL up to about 18 feet MSL. Groundwater levels may fluctuate due to variations in rainfall and other factors.

The normal tidal range at the site is –2.3 to + 2.7 MSL, however, the maximum tidal range is from –4.5 feet MSl to +4.0 feet MSL. Mean high tide level is 1.6 feet MSL. The geotechnical report indicates that water has overtopped the bluff during extreme wave run-up conditions, based on evidence of seaweed and debris on the blufftop near the 5th green.

Shoreline Erosion & Change

Coastal geologists from the U.S. Geological Survey have looked at historical aerial photos of beaches along the Monterey Peninsula, including Stillwater Cove, as part of a larger study of coastal processes and sediment transport along the Monterey Peninsula. Their results are summarized in the paper titled "*Sediment distribution and transport along a rocky embayed coast; Monterey Peninsula and Carmel Bay, California*" by Curt Storlazzi and Mike Field, dated 2000.[3] The Storlazzi and Field 2000 study looked at historical aerial photos of beaches along the Monterey Peninsula, including Stillwater Cove. The Storlazzi and Field 2000 study measured beach width from aerial photos dated 1949, 1970 and 1990 and determined that, similar to most beaches along the Monterey Peninsula, the width of the beach at Stillwater Cove has been reduced since the late 1940s. While the report does not include tabulated data, Figure 3 of the report shows a loss of about 10 meters (about 33 feet) in just over 40 years (or about 0.82 feet per year), which, over a 50-year economic lifespan, would represent a bluff retreat of about 40 feet.

HKA has actually monitored shoreline erosion and bluff recession at the 5th hole from 1998, when the 5th hole was originally constructed, to the present time. When the new 5th hole was constructed, the HKA 6/97 geotechnical report concluded that while it was necessary to use retaining walls along the ravine slopes, with incorporation of drainage improvements and erosion control landscaping, the immediate use of seawalls and retaining walls along the coastal bluff would be avoided.

More recently, the HKA 5/04 report found that the annual bluff recession rate at the 5th green was about 0.6 feet per year. (This figure, while close, is a bit more conservative than the erosion rate identified by Storlazzi and Field 2000.) However, the HKA 5/04 report also found that bluff erosion at the 5th green has been more a result of episodic rather than steady erosion. The HKA 5/04 report states that, based on the bluff erosion rates noted above, about 30 feet of bluff recession at the 5th green could occur within 50 years. The report also notes that 15 to 20 feet of blufftop recession could occur in one event due to episodic failure of the bluff face (these figures are based on the slope stability analyses, discussed below). Currently, portions of the 5th green are within 10 to 20 feet of the top of the bluff. As a result of the December 2003 - January 2004 storms, a large landslide occurred near the 5th green, leaving portions of the green now within 20 feet of the upper landslide scarp. According to the HKA 5/04 report, the landslide at the 5th green occurred in an area where the bedrock is fractured and so more susceptible to erosion than other non-fractured areas of bedrock; they also noted that this area is one of the areas that is eroding most quickly. Based on measurements taken from project plans, the 5th green is about 15 feet from the erosional gulley created by the 2004 landslide and also within about 15 feet of the upper scarp of a smaller, more recent surficial slide (see photos in Exhibit F). Bunkers that surround the green are also within about 10-15 feet of the erosional gulley and surficial slide.

[3] Storlazzi, C.D., and Field, M.E.2000. *Sediment distribution and transport along a rocky embayed coast: Monterey Peninsula and Carmel Bay, California*. Marine Geology: V170 (2000) pp. 289-316.

While, as the name implies, the predominant conditions at Stillwater Cove are calm, winter wave conditions can entirely scour beach sands from the base of the coastal bluffs that back the beach in front of the 5th hole, and allow wave attack to erode the base of the bluff, over-steepening the bluff and causing bluff recession and landslides, especially in areas where fractured bedrock exists. While bluff erosion rates of 0.6 to 0.7 feet per year have been measured, which do not by themselves put the green in danger currently, episodic bluff erosion of 15 to 20 feet in one event could also occur. Since elements of the 5th green are located within 10 to 20 feet of the bluff, potential episodic events could cause substantial erosion of this area, and create hazardous geologic conditions (including additional debris flows along the bluff face or mass failure of the bluff) along the 5th hole.

Slope Stability

Long term shoreline erosion and episodic mass wasting events (sloughing, landslides, etc.) have the capacity to place structures on blufftops at risk. Measuring the degree of threat thus also requires evaluating the stability of the bluff materials themselves and their ability to resist failure.

A landslide occurs because a number of factors come together. These include the overall geometry of the hillside (or bluff), decreases in the effective normal stress at depth caused by increased water in the slope (buoyancy forces), and the strength of the bluff materials themselves. Landslides on coastal bluffs occur at least partly because marine erosion continually undermines the toe of the bluff, creating an unsupported geometry that is prone to landsliding. The risk of landslide can be quantified, to some extent, by taking the forces resisting a landslide (principally the strength of the materials along a potential slide plane) and dividing them by the forces driving a landslide (principally the weight of the materials as projected onto the potential slide plane). If the quotient, called the factor of safety, is 1.0, failure is imminent. The factor of safety should never, in theory, be below 1.0, as a slide would have already occurred. Factors of safety greater than 1.0 lead to increasing confidence that the bluff is safe from failure.

Slope stability can be evaluated quantitatively by a “slope stability analysis.” In practice, hundreds of potential slide planes are typically evaluated. The one with the lowest factor of safety is the one on which failure will occur. So the potential slide plane with the minimum factor of safety is the appropriate one to design for. If one steps back far enough from the edge of the bluff, potential slide planes intersecting the top of the bluff generally will have higher and higher factors of safety. A factor of safety of greater than or equal to 1.5 is the industry standard for new development to be “safe” from a landslide under static conditions. During an earthquake, additional forces act on the bluff, and a landslide is more likely. To test for the stability during an earthquake, a “pseudostatic” slope stability analysis can be performed. This analysis is rather crude, but the standard methodology is to apply a “seismic coefficient” of 15% of the force of gravity (0.15g), the force of which is added to the forces driving the landslide. The standard for new development in California is to assure a minimum factor of safety greater than or equal to 1.1 in the pseudo-static case. The HKA 6/04 supplemental report makes use of a somewhat more sophisticated approach that takes into account topographic amplification of ground shaking at cliff edges.

As described above, the geology at this location consists of unconsolidated clayey sands that rest on top

of cemented sandstone and conglomerate. The HKA 6/04 supplemental geotechnical report provides results of slope stability analyses conducted for the 5th tee complex (for the previously proposed 5th tee seawall), and found that under static (existing) conditions, the slope below the entire 5th hole is marginally stable (factor of safety of 1.05). However, under seismic loading (taking into account topographic amplification of ground shaking), and saturated soils, the slope would be unstable (factor of safety of 0.63), and so is at risk from the next seismic or heavy rainfall event. The slope stability analysis showed that without shoreline protection structures, the most likely failure planes are 20 feet from the bluff edge at the 5th green. Thus, structural elements of the 5th green that are located within 10 to 20 feet of the bluff, such as drainage improvements and irrigation infrastructure, are at risk from slope failures such as slumping and landslides. Slope stability calculated for a seawall with tiebacks used at this location, under the same seismic loading and soil saturation, slope stability is greatly increased (factor of safety of 1.19), which exceeds the 1.1 standard typically required for pseudo-static slope stability analyses.

C. Need for Shoreline Structure - Feasible Alternatives

The preceding discussion concludes that the 5th green includes structural elements in immediate danger from erosion and slope failure. The next Section 30235 "test" that must be met before a shoreline protective device can be approved is that the proposed armoring is "required" to serve coastal-dependant uses or to protect existing threatened structures. In other words, shoreline armoring shall be permitted if it is the only feasible alternative capable of protecting the structure.[4] Other alternatives typically considered include: the "no project" alternative; drainage and vegetation measures on the blufftop itself; abandonment or relocation of the threatened structures; sand replenishment programs; other less damaging structural alternatives; and combinations of some or all of these options. The Applicant, and staff, has evaluated these alternatives, as described below.

The No-Project Alternative

The HKA 5/04 and 5/06b reports evaluated the no-project alternative and, based on geotechnical results, determined that erosion from wave run-up will continue at the toe of the bluff, leading to further undermining along the 5th hole. Wave run-up would exacerbate toe erosion during each winter season. Subsequent rainfall would cause additional erosion and landsliding of the bluff face. The undercut 5th tee area and landslide scarp below the 5th green would likely collapse, causing further erosion and making the 5th hole unsafe to play. The 5th hole would thus ultimately have to be closed to prevent injury to users and the course again modified to relocate the hole elsewhere, which, as analyzed below, would require complete modification of the course, since residential and visitor serving commercial development now borders the entire course. Closure of the hole would eliminate the value of the PBGL as an 18-hole golf course.

Drainage and Landscaping

[4] Coastal Act Section 30108 defines feasibility as follows: "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Other non-structural alternatives typically considered by the Commission to respond to erosion are the use of selected bluff plantings and improved blufftop drainage controls. As described earlier, the HKA 5/04 and 5/06b reports notes that due to historical erosion along other coastal bluffs in the PBGL area, the potential for erosion from surface and subsurface drainage was addressed by the Pebble Beach Company during initial project design, as well as during continued use of the new 5th hole. The new 5th hole was constructed with deep curtain drains located upslope of the green, shallow herringbone sub-drains just below the turf, and hydro auger drains at the back of the green. Ongoing turf management of the 5th hole also uses an irrigation system with sprinkler heads that direct water away from the bluff top, and monitors soil conditions so that the turf grass is watered on an as-needed basis, with water directed to the root zone only, in order to avoid soil saturation and surface runoff. In September 2003, following continued use of the hole and several years observations of rainfall events, surface water runoff was further controlled by constructing a berm along the bluff edge to direct runoff away from the bluff face and into a drop inlet, that carries the water beyond the erosional scarp, and allows for controlled discharge onto the bedrock below.

These types of "soft" alternatives can serve to slow erosion and increase bluff stability and thus to greatly extend the period of time before improvements are threatened by erosion. However, such alternatives do not prevent the natural coastal processes from continuing to impact the bluff. Given the active forces of winter storm events (including wave attack, high tides, and heavy winter rains) that take place unabated along the unprotected shoreline, erosion will eventually (over the long-term) result in bluff retreat in the project area, at which point plantings and bluff drainage controls will not be adequate to address the erosion problem.

In this case, given the highly erodable materials at this location, and the recent landsliding activity that has occurred, additional drainage controls and/or additional plantings will not stabilize the bluff to the degree necessary to protect against continual wave impacts, wave run-up and subsequent slope failure. Thus this alternative alone would be insufficient to protect the 5th green complex. That said, the use of drainage controls and landscaping to minimize erosion and the extent of shoreline armoring continue to be important elements of project design, and are thereby required by the terms of this permit.

Relocation of Threatened Structures

One alternative potentially available to protect the 5th hole without use of shoreline protection devices is relocation of the threatened 5th green complex. The applicant chose this approach for the 5th tee because (as described in the HKA 5/06b report) after further examination of the shoreline and consideration of the dynamics of the hole, relocating the tee complex landward of its present position was determined to be a feasible alternative that would avoid the need for shoreline armoring.

The 5th hole, including the green, is bounded on the southwest by the eroding shoreline, and on the northeast by the 10-foot wide paved golf cart path that is located along the boundary of the adjacent residential parcel, and so can not be moved further inland. However, as measured from aerial photos of the site (since the path is not shown on site plans for this area), there is about 50 feet of space between the green and the cart path. Thus if the green (and associated drainage improvements and bunkers) were moved to within 10 feet of the cart path (to allow room along the cart path for pedestrian

safety), the outboard edge of the green could potentially be moved about 40 feet landward of its present location. Such relocation would move the green landward of the predicted 50-year bluff recession setback of 30 feet and the area potentially at risk from episodic failure.

However, as described in the HKA 5/06b letter which analyzed project alternatives, the applicant considers that such relocation is not feasible since relocation of the green would significantly reduce the size and functionality of the greens surround, and would cause critical problems with golfer sight lines and ball travel paths. In addition, according to the applicant, any alteration, relocation, or deletion of critical components of the hole such as the green complex would compromise the integrity of the design, negatively affect playability and hole rating (difficulty), and would diminish the aesthetic value of the hole and the overall golf course.

Least Damaging Structural Alternative

Because there are no feasible non-structural alternatives, shoreline protection is needed along the bluff face below the 5th green complex in order to protect the structural elements of the 5th green and the public recreational uses provided by this area.

The HKA 5/04 and 5/06b reports analyzed different potential structural solutions including a permanent engineered riprap revetment along the shoreline, and bluff face retaining walls. The emergency riprap structure currently onsite provides short-term protection, but could be extended and expanded to provide long-term protection. However, because the bluff face is very steep and high (nearly 40 to 48 feet high), it is unlikely that a riprap revetment could be placed all the way up to the blufftop to protect the upper bluff face from continued erosion. Also, because the bedrock platform slopes gently seaward, it is unlikely that the sloping bedrock platform could hold a large, steep revetment. Additionally, a permanent riprap structure that is flat enough to be stable would extend far out from the base of the bluff, which would severely impact lateral access and eliminate recreational use of the narrow beach in that location. Such a massive structure would also likely affect coastal processes such as littoral drift, impacting downcoast sediment supply, and so would merely relocate the shoreline erosion problems further downcoast. While the temporary shotcrete installed below the 5th green is currently holding the slope, it is still susceptible to erosion, and landslide activity. If additional shotcrete were to be used on the upper bluff face, it could be similarly susceptible to erosion around the edges and from behind. A bluff face retaining wall was also considered as a possible structural alternative. However, because the base of the bluff is eroding, upper bluff retaining walls could only be used in combination with other retaining structures, such as a riprap revetment, along the lower bluff. Because of the weak nature of the bedrock at the base of the bluff, an upper bluff retaining wall would be subject to undermining.

The preferred structural alternative is the project as proposed, which includes the placement of 160 linear feet of seawall within 4 feet of the bluff face at the 5th green. The wall has been designed to be vertical or near vertical, located adjacent to the existing bluff face to minimize landform alteration and encroachment onto the beach. The 5th green seawall will be a vertical seawall, backfilled with engineered fill to stabilize the bluff above it and recreate a maximum 2:1 slope, which will be revegetated to help reduce erosion. Use of steel tiebacks allows for the high, vertical design and close footing at the base of the bluff.

The portion of either seawall that is keyed into the bedrock below the toe of the bluff will cover approximately 320 square feet of beach. Project plans dated 5/04 show that the seawall would be keyed in to bedrock to a bottom elevation of 1 foot MSL (mean high tide is at 1.6 feet MSL). Wing walls will extend 11 feet on either side of the 5th green seawall to further key the walls into the existing bluff. The Coastal Commission staff coastal engineer, Lesley Ewing, reviewed the project plans, and noted that while the wing walls do extend somewhat beyond the immediate area at risk, they are not excessive, and do not require modification. She also concurred with the HKA assessment that the position of the end of the wing walls are located in the best locations to tie into the natural bluff face, and should minimize future required maintenance on the seawall and minimize the need to expand the seawall in the future.

Compared to the other structural options, and as conditioned to address impacts of seawall construction on coastal resources and public access and recreational opportunities (see Public Access and Recreation findings below), the proposed project appears to be the least environmentally damaging structural alternative, consistent with Coastal Act Section 30233(a).

Conclusion

The proposed development is required to protect existing structures associated with the 5th hole. The 5th green complex, which is 10 to 20 feet from the bluff edge, is immediately threatened by episodic erosion which can cause as much as 15 to 20 feet of bluff recession in a single event. Under existing static conditions the bluff face is marginally stable, however, under seismic loading or saturation from rainfall or seepage, the slope becomes unstable, and so is at risk from any future seismic or heavy rainfall event. Use of the vertical wall with tiebacks increases slope stability to an acceptable level.

While it may be possible to move the green about 40 feet landward, such relocation will not necessarily move critical elements of the hole beyond the area of potential bluff retreat (due to continued episodic bluff failure that would continue to be possible). Additionally, as described by the applicant, alteration, relocation or loss of critical components of the 5th hole, such as elimination of portions of the 5th green, would negatively affect the unique, challenging shot provided by the configuration of the hole across the bluff, would result in a net reduction of total teeing area on a hole with a minimum amount of existing teeing area based on USGA guidelines, and would result in a significant negative impact on the quality, playability, and the rating (or difficulty) of the hole, and thus would diminish the aesthetic value of the golf hole.

Because of the extent of shoreline erosion that has occurred to date, and the potential for 30-35 feet of bluff recession over 50-year economic life of the structures, and 15 to 20 feet of erosion that could occur during a single event, evaluation of feasible project alternatives has found that non-structural alternatives alone will not be sufficient to protect the 5th green complex. Therefore, in this case, approval of a shoreline protection structure to protect the existing structural components of the 5th green at risk from erosion is consistent with Section 30235, provided that the design of the structure eliminates or mitigates adverse impacts on local shoreline sand supply.

D. Sand Supply

Coastal Act Section 30235 requires that, where permitted, shoreline structures must be designed to eliminate or mitigate adverse impacts to local shoreline sand supply.

Beach sand material generally comes to the shoreline from inland areas, carried by rivers and streams; from offshore deposits, carried by waves; and from coastal dunes and bluffs, becoming beach material when the bluffs or dunes lose material due to wave attack, landslides, surface erosion, gullying, et cetera. Wind and wave action often provide an ongoing mix of material between beaches and coastal bluffs, along an erosional shoreline. When a shoreline protective device covers the back-beach or bluff face, the natural exchange of material either between the beach and bluff will be interrupted and, if the shoreline is eroding, there will be a measurable loss of material to the beach. In a receding shoreline (i.e., during times of sea level rise), all bluff material contributes to the littoral system at some level. However, sand and larger grain material are the most important components of the beaches in the vicinity of the project, and only the sand portion of the bluff or dune material is characterized as beach material.

Some of the effects of engineered armoring structures on the beach (such as scour, end effects, and modification of the beach profile) are temporary or difficult to distinguish from all the other actions that modify the shoreline. Shoreline armoring also has distinct qualitative impacts to the character of the shoreline and visual quality. Some of the quantifiable effects that a structure may have on natural shoreline processes include: 1) the amount of material that would have been supplied to the beach if the back-beach or bluff were to erode naturally; 2) loss of the beach area on which the structure is located; and 3) the long-term loss of beach area that will result when the back-beach location is fixed on an eroding shoreline.

Each of these potential impacts of shoreline structures affect public access and recreation by removing sand from the system that might otherwise replenish sandy beaches, encroaching on beach areas otherwise available for public use, or by causing the loss of beach area in front of the structure through passive erosion. The impact of the proposed seawall on public access and recreation is further discussed in Section 3, below.

Sand Supply

The US Geological Survey has studied sediment distribution and transport along the Monterey peninsula and Carmel Bay in detail. According to the Storlazzi and Field 2000 paper, the cliffs that back the beach along the eastern half of Stillwater Cove are composed of the easily eroded Carmelo formation, which is described as a submarine canyon deposit that includes marine sandstone with igneous and metamorphic lenses. By comparison, the western and eastern ends of Stillwater Cove are composed of more resistant granodiorite west of the Beach Club, and Tertiary volcanics of the Carmeloit Formation at Arrowhead Point. Sediment samples collected from various beaches along the peninsula as part of these studies show that beach sediment on Stillwater Cove is significantly different than that found in other areas, including Carmel Beach, immediately downcoast from Arrowhead Point. Storlazi and Field specifically note that

> *Even though there is a large percentage (~30% by mass) of well-rounded ferromagnetic gravel in the sediment along Stillwater Cove, the mean grain size falls close to the medium-to-fine sand transition. The sand fraction of this sediment tends to be more quartzitic and have a lower concentration of feldspars than along adjacent stretches of the coast. …Just south of Arrowhead Point, the sediment is similar to that along the western part of the Monterey Peninsula, in that it is more feldspathic in composition and lighter in color than the sediment in Stillwater Cove.*

Storlazzi and Field 2000, state that the source of sediment in Stillwater Cove

> *…appears to be both the granodiorite porphyry and the Carmelo Formation that crops out along much of the cove's shoreline. Granodiorite-derived sediment is contributed by both streams that drain the southern part of the peninsula and discharge into Stillwater Cove and the eastward transport of sediment along the southern peninsula's shoreface. The lack of any beaches along the southern part of the peninsula, along with the dominant northwesterly wave direction and shore parallel patches of sediment observed offshore of the surf zone indicate transport of sediment from the peninsula into the cove….*
>
> *Distinct large volcanic pebbles are present in the low bluffs of the Carmelo Formation that back the southern part of Stillwater Cove, and their presence in beach and nearshore deposits verifies that a significant fraction of the littoral sediment originated from these bluffs. Littoral sediment in this area is probably transported offshore and ultimately into the Carmel submarine canyon via nearshore channels identified in the bathymetry and aerial imagery. Arrowhead Point, which is composed of Carmeloite volcanics, is resistant to erosion and appears to be an effective barrier to southward sediment transport out of Stillwater Cove.*

Storlazzi and Field 2000 found that the beach sand at Carmel Beach is distinctly different composition than that found on Stillwater Cove, which leads them to believe that southward transport from Stillwater Cove to Carmel Beach does not occur.

Therefore, based on Storlazzi and Field 2000, while about 30% of the beach sediment in Stillwater Cove is comprised of well-rounded ferromagnetic gravel, approximately 70% is comprised of medium to fine-grained sand sized materials that have either been eroded from the coastal bluffs that back the beach, or the exposed granodiorite located along the southern peninsula shoreface and transported to the site via littoral currents that move sediment easterly and into Stillwater Cove. Since the erosion rates of the back beach bluffs are relatively higher than that for the more resistant granodiorite, the bluffs supply a greater proportion of the sand to the beach.

And, because of the significant differences in sediment composition between Stillwater Cove and Carmel Beach, it is believed that sand sized sediment is not transported further south, around Arrowhead Point but rather is probably transported offshore and ultimately into the Carmel submarine canyon. Therefore, unlike beaches located in the midst of a littoral cell, where longshore currents may provide significant amounts of sand from upcoast sources, retention of bluff material by shoreline protective devices could cause a significant reduction in sediment supplied to the beach at Stillwater Cove. And

since there are not many areas where the Carmeloite formation exists, the chemical composition of the beach sand is unique, and not easily replaced by sands mined elsewhere for potential renourishment.

Sand Supply Loss Due to Retention of Bluff Material by Shoreline Protection Devices

Shoreline retreat and erosion is a natural process that can result from many different factors such as wind, wave and tidal erosion, sea cave formation and collapse, saturation due to high ground water, and bank sloughing. Erosion of these materials serves as inputs back into the system, where it may be deposited further downstream or downcoast. Since most coastal bluffs in California are made of sandy marine terrace deposits, or sandy alluvial and fluvial sediment, bluff retreat is one of several ways that beach quality sand is added to the shoreline. Thus the natural coastal processes that work to form and retain material on sandy beaches can be significantly altered by the construction of shoreline armoring structures because they remove sediment that would otherwise be supplied to the littoral system.

The subject site is located within Stillwater Cove, which is exposed to southwesterly winter wave energy. As a result of its location, and narrow beach fringe, strong winter waves can scour the sandy beach all the way to the more compacted and cemented sandstone and conglomerate bedrock wave cut platform, which sits at an elevation of about zero to +2 MSL. During times of prevailing weather, however, the lesser wave energies move most of the sand back onto the bedrock terrace and build the beach to an elevation of about +5 MSL; what is not moved across shore and back onto the beach is moved alongshore by the littoral current. The Storlazzi and Field 2000 study points out that due to the existing geographic configuration of the shoreline, the eastern portion of Stillwater Cove beach is somewhat protected from northerly and westerly wave approach by the Monterey peninsula and southwesterly waves by Point Lobos, Pescadero Point and a group of offshore rocks that mark the southwestern boundary of the cove. Thus, erosion at Stillwater Cove most likely occurs when strong southwesterly winter storm waves approach the shoreline.

The proposed construction of a shoreline structure will reduce the amount of sediment that can enter the system, which when transported into the littoral system, can serve to feed the beach at Stillwater Cove both by cross shore transport (on and off the beach) and alongshore transport (extending further down the beach). As proposed, the 5th green seawall will cover a linear distance of 160 linear feet, and will extend to a height of approximately 14 to 22 feet. According to the sand supply evaluation conducted by the project geotechnical engineers (HKA 8/04 and 5/06a), based on an average erosion rate of 0.7 feet per year, the volume of sediment retained by shoreline protective structure at the 5th green is estimated to be approximately 142 cy per year.

The geotechnical report indicates that based on the geologic exposure of the bluff, with the lower 25% of the coastal bluff composed of bedrock conglomerate, and the upper 75% composed of marine terrace deposits, the contribution from each formation would be about the same, meaning about 25% bedrock erosion and 75% terrace deposit erosion. The HKA 8/04 and 5/06a letter reports also indicated that based on sediment sampling from the site, it was determined that the average beach sand in the area was made up of sediment sizes coarser than 0.15 mm. Further sediment sampling from the bedrock and marine terrace deposits also indicated that 70% of the total volume of bedrock and terrace deposits have a grain size of more than 0.15 mm, which would remain in the littoral system (inferring, then, that the

other finer grained fraction is usually removed from the system by suspension or some other factor, and so would be lost whether the shoreline armoring was present or not). Thus it was calculated that 70% of the total volume per year, or 100 cy of sediment, would be removed by the shoreline armoring proposed by the project. Over the estimated 50-year economic lifespan of the project, this would result in the approximate loss of about 5,000 cy that would otherwise nourish the beach.

However, as the loss of this sediment reduces the sediment supply to the rest of the beach, it is also expected that this loss of sediment supply will result in some increased erosion rates, and thus further loss of beach, downcoast of the shoreline protective devices. At the present time, the length of the existing beach is approximately 1,300 linear feet. The shoreline protective device would be located approximately 1,030 feet south of the beach accessway. Therefore, the remainder of the beach, approximately 20% of the beach, would experience increased beach erosion due to reduced sediment supply as a result of the seawall.

Sand Supply Loss Due to Structural Encroachment on the Beach

Shoreline protective devices, such as the proposed seawall, are all physical structures that occupy space. When a shoreline protective device is placed on a beach area, the underlying beach area cannot be used as beach. This generally results in a loss of public access as well as a loss of sand and/or areas from which sand generating materials can be derived. The area where the structure is placed will be altered from the time the protective device is constructed, and the extent or area occupied by the device will remain the same over time, until the structure is removed or moved from its initial location, or in the case of a revetment, as it spreads seaward over time. The beach area located beneath a shoreline protective device, referred to as the encroachment area, is the area of the structure's footprint.

In this case, the proposed seawall has been designed using vertical and nearly vertical walls with tiebacks in order to remain within 4 feet of the base of the bluff, and so occupy only a very small portion (320 square feet) of the sandy beach located at the toe of the bluff. As described above, use of a revetment structure would require a massive footprint that would likely have to extend out entirely across the narrow beach at the base of the bluff. By selection of the vertical wall with tiebacks, the project has been designed in a manner that minimizes beach encroachment. While construction activities will temporarily require additional use of beach area, no lasting impacts are expected to occur as a result.

If natural erosion were allowed to continue (absent the proposed armoring), some amount of beach material would be added to natural sediment transport system and larger littoral system that serves the Stillwater Cove shoreline. The total volume of material that would have gone into the sand supply system over the lifetime of the shoreline structure would be the volume of material that would have come from bluff erosion, and material that would have come from the beach at the toe of the bluff. While we have no data to indicate the average loss of beach sand (e.g., from historic beach profiles), we know it will increase the 100 cy per year of sand loss calculated for bluff erosion.

Impacts of Fixing the Back Beach

Experts generally agree that where the shoreline is eroding and armoring is installed, as would be the case here, the armoring will eventually define the boundary between the sea and upland areas. On an eroding shoreline fronted by a beach, the beach will be present as long as some sand is supplied to the shoreline and the beach is not submerged by sea level rise. As erosion proceeds, the beach also retreats. This process stops, however, when the retreating shoreline comes to a revetment or a seawall. While the shoreline on either side of the armor continues to retreat, shoreline retreat in front of the armor stops because no more material is available to be eroded. Erosion will continue to proceed on either side of the structure and eventually, the shoreline fronting the armor protrudes into the water, with the mean high tide line fixed at the base of the structure. In the case of an eroding shoreline, this represents the loss of a beach as a direct result of the armor. This effect, which is known as "passive erosion," is what will eventually cause the formation of peninsulas if the proposed seawall is constructed at the PBGL 5th Green.

Passive erosion can be the most significant impact caused by seawall placement on eroding coastlines. The alteration in the shape of the shoreline in front of and on either side of the armoring structure causes detrimental impacts to public lateral access and recreation as the existing beach in front of the structure is lost. In addition, as the beach becomes narrower over time, there is a risk of injury to swimmers at high tides and to beachgoers who may get caught between the wall and high surf. The passive erosion in front of the seawall that will result from the proposed project will eventually eliminate the public recreational beach area in front of the 5th hole, as well as the existing lateral access and recreational opportunities this beach now provides.

Stillwater Beach fronts the coastal bluffs along the 4th, 5th and 6th holes, between Stillwater Pier and Arrowhead Point, and is open to the public via the Stillwater Cove access way (ramp/stairway) at the southeastern end of the Beach Club parking lot. Based on measurements taken from a 2001 aerial photo submitted as part of the draft construction access plan, the beach is about 1,300 feet long. Based on measurements taken from the applicant's cross-sections, the beach is about 90 feet wide at its widest point (5th tee, Section 6), and as narrow as 48 feet (5th green section 4), narrowing down to about 20 feet wide where the beach ends against Arrowhead Point. The average beach width, based on widths taken from all 13 cross sections measured, is approximately 68 feet.

As described previously, HKA has determined shoreline erosion rates at the 5th green of 0.6 feet per year, respectively. Coastal geologists from the US Geological Survey have studied coastal processes and shoreline change along the Monterey Peninsula. They indicate that, based on aerial photo interpretation, the beach at Stillwater Cove has narrowed at least 33 feet in the last 40 years, which equates to a beach recession rate of approximately 0.82 feet per year.

Construction of the proposed seawall will serve to fix the back beach, and over time will lead to the formation of a peninsula protecting the 5th Green, which will result in a loss of the beach in front of this structure, as well as a loss of public access to whatever beach may remain south of this structure. Using an average shoreline erosion rate of 0.7 feet per year, passive erosion will reduce the beach width seaward of the 5th Green by at least 35 feet within 50 years, and by 68 feet (average beach width) in approximately 97 years. Although the geotechnical reports do not discuss impacts of sea level rise, it

is certain that sea level rise would exacerbate the situation,[5] by moving the mean tide level landward, and allowing deeper water wave energies to impact the shoreline. It is also likely that once the seawall is constructed, it will be maintained and repaired in order to actually extend its lifetime. Thus, it is possible that the entire beach in front of the 5th Green complex will be lost within 97 years (and perhaps sooner if erosion rates increase as is expected due to sea level rise).

The Commission has established a methodology for calculating the long-term loss of public beach due to fixing of the back beach, this impact being equal to the long-term erosion rate multiplied by the width of bluff that has been fixed by a resistant shoreline protective device.[6] Using this calculations, and given the range of estimated average erosion at the 5th hole of between 0.6 to 0.82 feet per year, the impact of the 160 feet of seawall then translates to passive erosion of approximately 96 to 131 square feet of beach per year.[7] Over the 50-year life of the project, passive erosion would reduce the available beach area from between 4,800 square feet (0.11 acre) to 6,500 square feet (0.15 acre).

Additionally, once the beach in front of the seawall is gone, the entire beach area south of the seawall will be unavailable as well, because lateral beach access to this area will no longer remain. Approximately 300 linear feet of beach south of the structure, or almost half an acre of beach (300 feet x 68 foot average width = 0.47 acre) will be lost from the 5th green to the southeastern end of the beach due to construction of the project. Loss of the beach in this area also results in loss of the associated recreational activities provided by this section of Stillwater Cove Beach (discussed further in Public access section below).

Cumulative Impacts of Shoreline Armoring

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[5] There is a growing body of evidence that there has been a slight increase in global temperature and that an acceleration in the rate of sea level can be expected to accompany this increase in temperature. According to the *Third Assessment Report - Climate Change 2001*, by the International Panel on Climate Change (IPCC) global sea level is predicted to rise by 0.09 to 0.88 meters (0.3 to 2.88 feet) from the 1990 level by 2100, with significant regional variability. Monterey Bay was not included in the estimates of sea level rise through the year 2100. The closest tidal stations with an adequate record to use for a 100-year projection were San Francisco and Santa Monica. Both those locations could, by the year 2100, have a rise in sea level approaching 3 feet, with a 10% probability that it would be higher than that, based on estimates of historic and future sea level change provided by the U.S. Environmental Protection Agency in Titus and Narayanan (1995) "The Probability of Sea Level Rise" (EPA 230-R-95-008). In the Monterey Bay area, the trend for sea level rise for the past 25 years has been an increase resulting in an historic rate of nearly 1 foot per 100 years (NOAA, National Ocean Service), significantly higher than the average historic change recorded at either San Francisco or Santa Monica. This deviation in historic trends between Monterey Bay and both San Francisco and Santa Monica is very likely due to the short duration of the tidal record at Monterey; however, it can also suggest that the localized rise in sea level in Monterey Bay may be higher than what was experienced at either San Francisco or at Santa Monica. Thus the future 100 year-change in mean sea level for Monterey Bay may be higher than the estimated 2.7 feet (for San Francisco) or the estimated 2.85 feet (for Santa Monica).

[6] The area of beach lost due to long-term erosion (Aw) is equal to the long-term average annual erosion rate (R) times the number of years that the back-beach or bluff will be fixed (L) times the width of the bluff that will be protected (W). This can be expressed by the following equation: Aw = R x L x W.

[7] That is, 0.6 feet per year multiplied by 160 feet for the lateral beach area that will be blocked by the seawall, equals approximately 96 square feet per year; 0.82 feet per year equates to 131 square feet per year.

Historically, responses to shoreline erosion and upper coastal bluff failure have been to install protective structures on a case-by-case basis. These are usually proposed when there is some evidence of erosion or failure, often after significant El Nino storm events. Protective structures include rock and mortar, rock riprap, seawalls, and concrete cube revetments.

As shown in Table 1, in Section 3c of this report, at least 14 permits have been granted for shoreline protective structures along the PBGL shoreline. Shoreline protection permits have been approved by both Monterey County and Coastal Commission permits. Structures located along the 5th, 9th, and 10th holes have all been permitted by past County permits, while structures located along the Beach Club shoreline, and the 4th hole, 17th green, 18th tee, and 18th green have been permitted by Coastal Commission actions. The Coastal Commission also permitted the repair or modification of some of these structures after LCP certification through amendments to the earlier Coastal Commission permits, as required by conditions of those permits. The Commission also approved three *de minimis* waivers for repairs of the existing riprap revetment along the shoreline of the Beach Club at Stillwater Cove, excavation of test pits, and equipment operations on the beach to support bluff stabilization efforts permitted by the County. Thus, while the permits are often considered on a case-by-case basis, the cumulative impact of approving these projects is that about 1,940 feet of the approximately 11,350-foot shoreline (or approximately 17 percent) along the PBGL is now armored.[8] Other shoreline protective structures are located along residential and other open space parcels in the Del Monte Forest Land Use Plan area, and together occupy a total of approximately 10 percent of the Del Monte Forest shoreline.

Mitigation of Shoreline Sand Supply Impacts

Section 30235 requires that shoreline structures eliminate or mitigate sand supply impacts. Various mitigation approaches for dealing with potential project-specific adverse impacts were given in the HKA 8/04 and 5/06b letter reports, including periodically trucking in sand to the site to nourish the beach, payment of an in lieu mitigation fee to support local beach nourishment projects, and supporting land use activities elsewhere that increase sand supplies to beaches (such as the elimination of dams), however few details accompanied these options and no specific mitigation measure was recommended by the reports.

While the Commission has commonly applied in-lieu fees or beach nourishment as mitigations for sand supply impacts, no such in-lieu fee or beach nourishment programs currently exist in the Del Monte Forest area. Absent a comprehensive program that provides a means to coordinate and maximize the benefits of sand replenishment mitigation efforts in the area now and in the future, the success of any piecemeal mitigation effort is questionable. In addition, because of the unique mineralogic composition of beach sands at Stillwater Cove, and the sensitive nearshore habitat adjacent to the site, beach nourishment activities would pose adverse impacts to the beach and adjacent intertidal habitats. Similarly, while supporting land use activities that increase natural sand supplies to beaches (such as dam removal) would be beneficial, such activities might actually be located far from the project site at

[8] PBGL shoreline length and armoring lengths given are approximate, and are based on available data from the GIS developed as part of the Monterey County LCP Periodic Review.

hand and so require a long time to have beneficial impacts at the actual project site. Because of this, the Commission usually prefers onsite mitigation when feasible.

As discussed in the Commission's Monterey County LCP Periodic Review, one way to avoid future *ad hoc* decision making and to mitigate for the cumulative impacts of incremental shoreline armoring along the Del Monte Forest shoreline is to develop a comprehensive shoreline management plan for the entire Del Monte Forest shoreline. A comprehensive shoreline management plan would identify where ongoing erosion is of concern, when and where non-structural actions (such as setbacks, relocation, landscaping and drainage improvements) can be used to reduce risk from shoreline erosion, where removal of existing shoreline protective structures may be appropriate, and where and what type of mitigation measures are most appropriate. Such a comprehensive shoreline management plan could then be used to avoid structural armoring where possible, provide design guidelines when shoreline armoring is necessary, identify appropriate setback and relocation strategies, and identify appropriate mitigation requirements. While the intent would be to evaluate all feasible alternatives in order to avoid further shoreline protective devices, in cases where avoidance is not possible, such a plan would also require use of best available technology for integrating shoreline protective devices into the natural landscape and would provide more specific design criteria to ensure that development of necessary shoreline structures would be carried out in a manner that protects coastal resources in conformity with Coastal Act requirements. Requiring such a shoreline management plan also follows the Marine Sanctuary Action Plan's call for developing sub-regional shoreline guidelines.

As described above, no feasible site-specific mitigation is currently available to address the project's sand supply impacts. In the absence of feasible site-specific mitigation, it is appropriate to look at the PBGL as a whole for mitigation opportunities. In addition, shoreline armoring at the 5th Hole will contribute to cumulative sand supply impacts along the PBGL shoreline, further rendering course-wide or Del Monte Forest coastline mitigation appropriate. As such, in order to effectively mitigate for project-specific and cumulative sand supply impacts of the project, a comprehensive plan is required to address long-term shoreline management and alternatives to armoring the shoreline.

Since the Pebble Beach Company owns most of the shoreline in non-residential areas of Del Monte Forest, and would be responsible for ongoing shoreline protection efforts, it is recommended in the Periodic Review that they develop such a comprehensive plan for all of their holdings, which could then be used by the County as a pilot project for a larger Del Monte Forest Planning Area comprehensive shoreline management plan. Furthermore, since the Pebble Beach Company has historically served as the general services manager for much of the Del Monte Forest area, managing road repair and maintenance of the golf courses and public beach access points throughout the Del Monte Forest Area, they would have the ability to develop a coordinated plan for most of the publicly accessible shoreline in Del Monte Forest, as well as the means to conduct necessary mitigation requirements proposed by such a plan.

Accordingly, this permit has been conditioned to require the Pebble Beach Company to develop a shoreline management plan for shoreline parcels of the PBGL course. This plan must be reviewed and approved by the Executive Director within 2 years of approval of this project, as outlined in Special

Condition 3. The Pebble Beach Golf Links Shoreline Management Plan shall identify baseline conditions at each of the PBGL shoreline parcels, based on beach and bluff profiles, the littoral system within which the PBGL area is located, the source and rate of sediment transport, the volume and manner of sediment exchange (i.e., amount of sediment moved alongshore and out of the littoral system, versus that moved cross shore, and generally retained by the beach), and recommend what mitigation measures would be most appropriate under prevailing conditions at the various locations. Because armoring results in diminished sand supply not only at the armored site, but also at downcoast beaches, the management plan must assess the feasibility of de-armoring currently armored upcoast segments, within the PBGL and/or in other Pebble Beach Company's holdings and/or on privately-owned parcels that the Pebble Beach Company could purchase, to replenish the littoral system and sandy beaches downcoast that have been depleted or will be depleted due to armoring. After the course-wide shoreline evaluation is complete, the applicant must apply the assessment to development of mitigation that addresses sand supply impacts of the currently proposed seawall. This may include reassessment of potential mitigation opportunities for the 5th hole that were previously discarded or not considered, and will likely include mitigation at other locations along the PBGL shoreline. The adequacy of the final plan will be based largely on its application to the 5th hole. Furthermore, all future PBGL shoreline armoring proposals would be required to be consistent with this plan.

In order to evaluate the actual impacts of the approved seawall, and to collect data with which to develop the shoreline monitoring plan described above, Special Condition 5 also requires the applicant to develop and implement a plan for monitoring, maintenance and reporting of the seawall and adjacent beach and bluff profiles, in order to establish baseline conditions, and monitor change over time as a result of the project. Thus, Special Condition 5 requires the applicant to conduct 9 beach profiles at Stillwater Cove (at no more than 200 foot increments between Stillwater Pier and Arrowhead Point), and as shown in Exhibit I.2, prior to construction of the seawall and immediately following construction. Beach and bluff profiles shall also be monitored twice annually (to measure the winter and summer beach profiles) for the first five years following construction, and then annually each summer for up to 10 years to identify changes to the beach width and volume following construction of the 5th hole seawall. Surveys should be conducted around the same time each year to make comparisons of beach width under the same wave climate and climatic conditions over time. The applicant shall also be required to conduct annual maintenance for a minimum of five years to remove any loose riprap and other debris from the beach between Stillwater Pier and Arrowhead point in order to keep the maximum width of the beach available for public use. Additional permits or permit amendments may be required if existing, previously permitted riprap revetments are in need of further repair.

Sand Supply Impacts Conclusion

As detailed above, the 5th green seawall project as proposed will retain at least approximately 100 cy of coastal bluff material that would otherwise nourish the beach at Stillwater Cove on an annual basis. Since the seawall has a projected lifespan of 50 years, this would ultimately result in a reduction of approximately 5,000 cy of sand removed from the system, and more if repair and maintenance of the seawall serves to extend its lifespan, as would be expected. Additionally, by placing a shoreline protection structure against the bluff to protect the 5th green, the location of the back beach in those

areas becomes fixed, and the beach in front of the structure can become compressed, or narrowed, over time because the beach/bluff system can no longer fluctuate in response to changes in sea level or wave climate. Thus loss of sand supply to the beach, encroachment on the beach, and fixing of the back beach by use of this shoreline structure will reduce sediment supply to the beach and littoral system, lead to a narrowing of the beach in and around the project area, and ultimately result in the loss of approximately half an acre of beach and, consequently loss of the public recreational opportunities provided by the beach (as described further in the Public Access section, below), as well as possibly faster long-term erosion rates for adjacent unprotected coastal bluffs.

Cumulative impacts of shoreline structures along the PBGL shoreline have resulted in armoring approximately 17 percent of the shoreline. While it has been shown that shoreline protective devices are necessary to protect critical elements of the PBGL, alternative approaches to armoring (such as relocation, beach renourishment, etc.) should be studied and implemented as part of a comprehensive shoreline management plan developed for the PBGL shoreline to mitigate for cumulative impacts of shoreline protection devices. Therefore, the permit has been conditioned to require such a shoreline management plan for the entire PBGL course.

In order to evaluate the actual impacts of the approved seawall, and to collect data with which to develop the shoreline monitoring plan described above, the applicant has also been required to develop and implement a plan for monitoring, maintenance and reporting of the seawall and adjacent beach and bluff profiles, in order to establish baseline conditions, and monitor change over time as a result of the project.

Thus only as conditioned to mitigate for impacts of the project, can it be found consistent with the fifth and final test of Section 30235, and is thus consistent to the degree feasible with this Section of the Coastal Act.

E. Long Term Structural Stability and Assumption of Risk

Geologic Stability

Pursuant to Coastal Act Section 30253, new development must assure stability and structural integrity, and not contribute to erosion or geologic instability, or require the construction of protective devices that would alter natural landforms along bluffs and cliffs. Thus, the project design must address the geologic and seismic hazards identified by the geotechnical reports, which include the following:

1. The site is likely to be shaken by earthquakes of approximate magnitude of 7.5 with an average recurrence interval of between 138 and 188 years along the North Coast segment of the San Andreas. Earthquakes of magnitude 6 or 7 are also likely along many of the faults within the Monterey Bay area.

2. Slope stability under static conditions is marginal, but would become unstable during a seismic event or heavy precipitation event. Slope stability is greatly improved by the proposed seawall, providing an acceptable factor of safety under both seismic and saturated conditions.

3. Significant erosion has occurred at the site due to basal wave attack, over-steepening of the bluff face, and from precipitation directly on the bluff face, which have caused slumping and debris flow landslides.

4. Wave run-up analysis indicates that infrequent, large waves may still overtop the 5th green seawall, but would occur infrequently, probably less than once per year on average.

Conclusions of the HKA 6/04 supplemental geotechnical report were that the coastal bluff repair project appears compatible with the site, providing recommendations made in the report were incorporated into the design and construction of the project. To ensure that the project is constructed consistent with geotechnical recommendations, it has been conditioned to require that geotechnical recommendations be incorporated and the geotechnical engineer be involved in the design and construction phases of the project. If any changes are required, any additional geotechnical recommendations or mitigation measures shall be submitted to the Executive Director for review and approval before their incorporation into the project.

Assumption of Risk

The experience of the Commission in evaluating the consistency of proposed developments with Coastal Act policies regarding development in areas subject to problems associated with geologic instability, flood, wave, or erosion hazard, has been that development has continued to occur despite periodic episodes of heavy storm damage, landslides, or other such occurrences. Oceanfront development is susceptible to bluff retreat and erosion damage due to storm waves and storm surge conditions. Past occurrences statewide have resulted in public costs (through low interest loans, grants, subsidies, direct assistance, etc.) in the millions of dollars. As a means of allowing continued development in areas subject to these hazards while avoiding placing the economic burden on the People of the State for damages, the Commission has regularly required that Applicants acknowledge site geologic risks and agree to waive any claims of liability on the part of the Commission for allowing the development to proceed.

There are inherent risks associated with development on and around eroding bluffs in a dynamic coastal environment; this applies to the project proposed as well as for the development that is located landward of the shoreline. The proposed seawall along the 5th hole shoreline, and all development inland of it, still has the potential to be affected by shoreline erosion in the future.

Although the Commission has sought to minimize the risks associated with the development proposed in this application, the risks cannot be eliminated entirely. Given that the Applicant has chosen to pursue the development despite these risks, the Applicant must assume these risks. Accordingly, this approval is conditioned for the Applicant to assume all risks for developing at this location (see Special Condition 12).

Monitoring, Maintenance, and Long-Term Stability

Since the proposed seawall will be keyed into the existing bedrock, it is not likely to sink or move down slope due to gravity or undermining of unconsolidated sediments beneath them. It is thus expected that

the seawall will continue to provide shoreline protection throughout the life of the structures, estimated by the geotechnical report to be 50 years, as long as monitoring and maintenance activities are undertaken when necessary to ensure that the artificial rock fascia (colored and texturized concrete facing) and other structural components of the seawall, wingwalls, and backfilled slope are repaired if necessary due to overtopping or impact from large rocks or marine debris. Therefore, the applicant has been required to develop a plan for long-term monitoring and maintenance of the seawall to ensure that they remain in their original location, and continue to function effectively (see Condition 7).

Furthermore, the backfilled slope and upper bluff soils above the 5th green seawall must be stabilized with vegetation appropriate to the site, and 5th green drainage shall continue to be controlled to ensure overall stability of the bluff edge. Long-rooted, non-invasive, native plant species suited for the site should be used for this purpose. In a bluff setting, these species can help to stabilize bluff soils, minimize irrigation of the bluff (again helping to stabilize the bluff), and can help to avoid bluff failure. They also create a more natural looking landform, which can help to offset the visual impacts of the seawall (see also Visual findings below).

In addition, in order to find the proposed project consistent with the Coastal Act, the Commission finds that the condition of the seawall, and bluff plantings, in their approved state must be maintained for the life of the structure. Therefore, special conditions are attached to this approval for surveyed reference points to assist in evaluation of future proposals and monitoring at this site (see Special Conditions 4 and 5) and drainage and landscape plans for the engineered slope/revegetated bluff area (see Special Condition 1). The Applicant shall be responsible for ensuring adequate annual monitoring of the seawall and engineered backfill and is required to submit a monitoring report every five years that evaluates the condition and performance of the structures, and related drainage and vegetation elements, and to submit the report with recommendations, if any, for necessary maintenance, repair, changes or modifications to the project (see Special Condition 5). Furthermore, the permit has been conditioned to require that a deed restriction must be recorded to ensure that any future landowners are clearly notified of the conditions of this permit, particularly the public access mitigation requirements (in section 2, below) which run with the property.

Finally, the project has been designed to halt shoreline erosion at the 5th green complex, and the seawall is not expected to increase erosion of the adjacent bluffs because the ends of the seawall have been deliberately located in natural indentations in the bluff face. As such, the seawall is not expected to result in the need for future shoreline armoring on the adjacent bluffs, and no other areas of the hole have been identified as being at immediate risk for bluff failure (aside from the tee, which the applicant intends to relocate as necessary). Therefore, to maintain consistency with Section 30253 of the Coastal Act, the permit has been conditioned to prohibit future construction of additional seawalls, shoreline protection devices, bluff retaining walls, or similar structures on the 5th hole parcel (Special Condition 10). This condition will allow for natural coastal processes to occur unimpeded on the remaining bluff area, and will ensure that no future landform altering protective measures will be located on this parcel.

d. Conclusion

As conditioned to require submittal of final engineered plans that incorporate all geotechnical recommendations (and that can be peer-reviewed by the Commission's coastal engineer), and as-built plans following construction, that require the geotechnical engineer be involved in the design and construction phases of the project, any additional geotechnical recommendations or mitigation measures shall be submitted to the Executive Director for review and approval before their incorporation into the project, long-term monitoring and maintenance to ensure the permitted structure remains effective and in its approved location, and for the Applicant to assume all risk and responsibility for development at this shoreline location, and as discussed above, the proposed project is consistent with Coastal Act Section 30253.

As discussed above, the facts of this particular case show that the proposed project is required to protect existing structural elements in danger from erosion and that, with incorporation of mitigation measures as described, is the least environmentally damaging, feasible alternative. The proposed project has been designed and conditioned to minimize (to the extent feasible) sand supply loss and beach encroachment, and mitigates for cumulative impacts by developing a Shoreline Management Plan for the PBGL shoreline. Special conditions have also been applied for long-term maintenance of the seawall, no future seawalls, and assumption of risk. Thus, as conditioned, the proposed project can be found consistent with Coastal Act Sections 30235 and 30253.

2. Public Access and Recreation

a. Issue

As discussed, the project includes a new shoreline protection structure that will reduce the amount of sediment otherwise supplied to the beach, and fix the back beach area, which will change long-term erosion characteristics and result in a reduction of sandy beach area adjacent to the project site. As shoreline erosion continues, once the back beach is armored by the proposed seawall, the beach in front of the structure will be lost over time because the back beach can no longer retreat landward. And once the beach in front of the seawall is gone, the beach area from the 5th green south will be unavailable as well, because lateral beach access to this area will no longer be possible once all beach in front of the seawall is lost. At a distance of approximately 300 feet and an average width of 68 feet, the project will ultimately result tin the eventual loss of approximately 0.47 acre of public beach along with the associated recreational activities provided by this portion of Stillwater Cove Beach.

Due to the rocky headlands at either end of the beach and the steep bluffs that back the beach, access to Stillwater Cove Beach is only available through the Beach Club parking adjacent to the Stillwater Pier, to the north of the project area. No other roadway or trail connects Stillwater Cove to other roads or pedestrian paths in the area, and since the golf course and several residences are located between the beach and the nearest roadway at the south end of the beach, no other pedestrian route exists that would allow the public to reach the beach south of the proposed shoreline structures.

Because of its location, orientation, scenic character, and availability to the public, the beach at Stillwater Cove is an exceptionally beautiful coastal location and a highly valued public recreational site for low cost public access to the shoreline. And because most of the shoreline in the Del Monte Forest

is a rocky shoreline, sandy pocket beaches are rare and of limited extent. Therefore, loss of beach area at Stillwater Cove will be a significant impact of the project, and will reduce or eliminate valuable public access opportunities provided adjacent to and downcoast of the project site.

b. Relevant Regulatory Policies

Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea includes a specific finding that the development is in conformance with the public access and recreation policies of Chapter 3 of the Coastal Act.

Coastal Act Sections 30210 through 30213, 30220 and 30224 specifically protect public access and recreation. In particular:

> ***30210****: In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*
>
> ***30211.*** *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*
>
> ***Section 30212.*** *(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:*
>
> *(1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,*
>
> *(2) Adequate access exists nearby, or,*
>
> *(3) Agriculture would be adversely affected….*
>
> ***Section 30213:*** *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. …*
>
> ***Section 30220.*** *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Additional Coastal Act policies that provide for maximizing public access and recreational opportunities also include Section 30251 regarding the protection of scenic views (see Visual Resources finding below).

c. Analysis of Public Access and Recreation

Beach Access and Low-Cost Recreational Opportunities

The Pebble Beach area provides numerous public access and recreational opportunities of regional and statewide significance. Within Del Monte Forest, Pebble Beach is the main commercial enclave with shops, restaurants, and other amenities available to the general public and casual visitor (i.e., non-resort guest). The Equestrian Center is located here, as is the 9-hole Peter Hay Golf Course that provides low cost golfing use for the general public (approximately $20 per round).

The PBGL course, which is rated the top publicly available course in the nation, provides for limited public recreational use along much of the Pebble Beach coastal area, including the 5th hole site. However, current rates for daily use of the course are $450 for resort guests, including cart fee, and $450 + cart fee of approximately $25 per player for non-resort guests, so access in these areas is limited to those able to afford such prices. The beach below the 5th hole and along Stillwater Cove, between the Stillwater Cove Pier and Arrowhead Point, is available for public use, once an entry fee of $8.50 is paid for vehicular entry on 17 Mile Drive (pedestrian and bicycle access on 17-Mile Drive is free). Access to 17-Mile Drive, and thus to Stillwater Cove, is also sometimes restricted during large temporary events based on an agreement with the County (e.g., during the AT&T Golf Tournament).

Public access to the shoreline at Stillwater Cove, as well as most of the low-cost coastal access in Del Monte Forest, was formalized through the Coastal Commission's approval of the Spanish Bay Resort (CDP#3-84-226; approved March 1985).[9] The Spanish Bay Resort is located north of the PBGL course, and is also owned and operated by the Pebble Beach Company. The Stillwater Cove public access area (identified as location 12 on the Del Monte forest LUP Shoreline Access Map; see Exhibit K) is used for day beach use, as well as for diving and boating, and includes public parking in the lots near the 17th fairway and Pebble Beach Tennis Club, an equipment and passenger drop-off zone near the pier, a ramp/stairway for access to the shoreline, and recently improved public restrooms that include showers for divers. The shoreline in this area has been armored over time and little to no sandy beach remains. Existing recreational activities occurring along the public portion of Stillwater Cove Beach east of Stillwater Pier include sunbathing, reading, relaxing, jogging, and walking on the sandy beach that extends approximately 1,300 feet east/southeast of the accessway located just west of the pier to the first outcroppings of Arrowhead Point.

The proposed seawall will halt erosion and armor the coastal bluff in the vicinity of the 5th hole, thus benefiting public recreational use of the golf course. However, as described above under sand supply impacts, the project will also result in a reduction of sandy beach width at the site due to passive erosion, and so will reduce the amount of lower-cost coastal access and recreational opportunities available to a larger population of the general public. As described above, the total area of beach lost in front of the seawall will be approximately 4,800 square feet (or 0.11 acre), using a shoreline erosion rate of 0.6 ft/yr over 50 years and 6,550 square feet (or 0.15 acre), using a shoreline erosion rate of 0.82 ft/yr over 50 years. Using an average shoreline erosion rate of 0.7, and average beach width of 68 feet, it is

[9] The Commission also required public access enhancement at Stillwater Cove and the surrounding Lodge area (via a public lodge area path and parking system) in its approval of the Casa Palmero project in 1997 (CDP A-3-MCO-97-037).

expected that within 97 years, the entire beach in front of the seawall will be gone, and, as a result, the beach area south of the seawall (approximately 300 linear feet of beach) will be unavailable as well, since through lateral access to this area will no longer exist. Given an average width of 68 feet and approximately 300 linear feet of beach south of these structures, the project will ultimately result in the loss of the public's ability to use approximately one half acre (0.47 acre) of beach area due to armoring of the bluffs.

The impacts of hardening the shoreline in this area are thus both direct and indirect, leading to significant negative public access impacts (e.g., loss of sand to the system overall, loss of beach space over time at the site as well as downcoast of the site, loss of lateral access along the beach, loss of low-cost recreation in an otherwise generally high-cost area, loss of beach ambience, and loss of aesthetics during construction). Therefore, if the proposed project is to be approved, then mitigation for this beach loss, and the related loss of low-cost public recreational opportunities and coastal access is necessary. Such mitigation needs to be related and proportional to the public access impacts.

As described previously, because of continued sea level rise and potential impacts to sensitive marine habitats immediately offshore, as well as uncertainty about the effectiveness and availability of appropriate sand sources, beach renourishment at Stillwater Cove is not considered to be a feasible alternative mitigation measure at this point in time. Since it may be impossible to replace the beach lost at the site itself, one alternative would be to incorporate a lateral access feature into the design of the seawall that would facilitate continued access to the beach area to the south of the structure. A lateral access feature would provide access over and/or around the structure in the event that the seawall results in the loss of the sandy beach in front of it or it otherwise becomes an impediment to lateral access. This feature of the seawall would allow for continued access to the southernmost beach area at Stillwater Cove. Special Condition 5 includes a requirement for incorporation of a lateral access feature at such time that annual monitoring finds continued access along the beach in this area of Stillwater Cove to be threatened. While this condition mitigates for the loss of lateral recreational access along this portion of the beach, it still does not compensate for the loss of recreational beach area lost in front of the seawall. Any funds collected through an in-lieu fee program would be used to purchase new public recreational land; however, few purchase options exist in the immediate vicinity. As such, any in-lieu fee would constitute offsite mitigation and would not adequately mitigate for the loss of recreational beach in the immediate vicinity of the project. In order to mitigate for such an impact, another alternative would be to obtain additional access to some other currently inaccessible or under-utilized beach area within the vicinity of the project.

The Del Monte Forest LUP Shoreline Access map identified 12 access points (as shown on Exhibit K) and Del Monte Forest LUP Policy 145 requires that improvements be made at these 12 designated areas as part of new development projects. As noted in Periodic Review findings, while eleven of the twelve access points have been developed and/or formalized as part of the Spanish Bay permit, the Carmel Beach access area (identified as number 11 on the Del Monte Forest Shoreline Access Map; see Exhibit K) has not yet been accomplished. Since this site is located in the vicinity of Stillwater Cove, and would provide additional low-cost recreational beach access to an area of beach that is currently

underutilized, completion of this access could serve as mitigation for the loss of beach area at Stillwater Cove.

Provision of a new accessway to the northern end of Carmel Beach will maximize public access to a portion of Carmel Beach not commonly used by the public, as the nearest existing access is located at the foot of Ocean Avenue, approximately 1,000 ft to the south and not immediately apparent to the public. Provision of the connecting trail segment between Carmel Way and Carmel Beach is currently the missing link that would allow through lateral access from the Del Monte Forest planning area to the City of Carmel-by-the-Sea, and on to the unincorporated Carmel land use area. This accessway would also be part of the Del Monte Forest trail system that exists throughout the forest as shown in Exhibit L.

Such a trail link would also provide continued lateral access along the conceptual California Coastal Trail (CCT) route in this area, providing lateral access from the Pebble Beach area to Carmel and beyond. Through lateral access does not appear feasible at the south end of Stillwater Cove, due to the rocky headland at Arrowhead Point and the lack of available public access through the golf course and adjacent residential areas. Thus, the conceptual alignment of the CCT in this area must go inland along 17-Mile Drive, to Ocean Avenue before it reunites with the shoreline. However, through lateral access for the CCT would be available along the shoreline between the Del Monte Forest and Carmel area once the Carmel Beach accessway was formalized.

Improvements required by Policy 145 for the Carmel Beach access area include an access trail, dedication, and improvement as a condition of development approval on any affected parcel. While the site-specific design criteria in the Appendix B of the Del Monte Forest LUP shows the proposed accessway going along a private residential driveway, east of Pescadero Creek, existing residential development prohibits the possibility of such a trail alignment. However, the actual alignment of the historic Redondo Trail in this area, which was used by both pedestrians and equestrians since the early days of the Del Monte Hotel (ca. 1930s), is along the existing maintenance road that borders the southern end of the PBGL course, and along the edge of the course adjacent to the Pescadero Creek ravine and then down the right bank of the Pescadero Creek ravine to Carmel Beach near the mouth of Pescadero Creek (as shown in Exhibits N, M.1, and M.2).[10] Since the PBGL property boundary extends along the top of the bluff adjacent to the Pescadero Creek ravine, formalization of an accessway along this southern property boundary would allow for a connection between Carmel Way and Carmel Beach. However, since that portion of the trail that presently leads down to Carmel Beach along the right bank of the Pescadero Creek ravine is on an adjacent private property, to ensure that the accessway remains open and accessible in perpetuity as part of this permit, it is necessary to require the applicant construct a new stairway along the face of the coastal bluff in order to get from the blufftop down to the beach (along Route A, as shown in Exhibits M.1 and M.2), unless some agreement can be reached with the adjacent property owner to provide such access in perpetuity on the existing trail (along alternate Route B, as shown in Exhibits M.1 and M.2).

[10] There may be prescriptive rights to the historic Redondo Trail that have not yet been documented and perfected.

Thus, in order to mitigate for lost beach and low-cost recreational use at Stillwater Cove, and to maximize public access and low-cost recreational use of other beach areas in the vicinity of the PBGL, this project is conditioned to provide public access between Carmel Way and Carmel Beach, along or in close proximity to the historic Redondo trail, by: (1) preparing and implementing a Trail Improvement Plan to provide a pedestrian accessway between Carmel Way and Carmel Beach as shown in Exhibits M.1 and M.2, either along Alignment A (from Point A to Point C1), or, if possible through negotiations with the adjacent property owner, along alternate Route B (From Point A to Point B and then to Point C2), consistent with trail standards identified in the Del Monte Forest LUP, with stairway segments, if necessary, to get from blufftop to beach, that includes provisions for public safety and landscape screening; (2) developing and implementing a signage plan to direct public access from Carmel Way to Carmel Beach via the accessway; and (3) revising the map handouts given to visitors to clearly indicate the Carmel Beach access location in the same size and manner as used for all other access points shown on the map. In addition, the applicant shall be required to execute and record a deed restriction that identifies that all conditions required by this permit shall continue to run with the land as long as the development allowed by the permit remains in existence.

The Pebble Beach Company has expressed concerns regarding pedestrian safety along the trail since it would be located in close proximity to existing golf play; however, examples of public pedestrian trails at other golf courses (e.g., Half Moon Bay Golf Course, Spanish Bay Golf Course, etc.) show that various approaches (including, but not limited to use of small berms, protective fencing and landscape screening) can be taken to resolve these user conflicts, even where a trail may actually extend across the golf course (see Exhibit O). Therefore, to provide for public safety, the permit requires construction of fencing or other structures, and signage as necessary to provide for pedestrian safety, and allows landscape screening to soften views of the structures as seen from the trail and adjacent recreational and residential uses.

Construction Activities

Some impacts to public access on Stillwater Beach will occur as a result of construction activities, but are expected to be of limited duration. To minimize such impacts, this permit requires that construction and demolition operations are limited to weekdays, between the hours of 7am to 4pm in order to avoid conflicts with continued public use of the beach on weekends and holidays, and that the project site and construction staging and storage areas be marked off with protective fencing for safety.

d. Public Access Conclusion

As proposed and conditioned by this permit, the project provides mitigation to maximize recreational and public access opportunities consistent with Coastal Act Sections 30210, 30211, 30212, 30213, and 30220. Therefore, as conditioned to complete the Carmel Beach accessway between Carmel Way and Carmel Beach, and to limit times for construction to minimize conflicts with beach users, the proposed project will maximize public access consistent with the public access and recreation policies of the Coastal Act.

3. Marine Resources and Environmentally Sensitive Habitats

a. Issue

The project involves construction activities that may adversely impact environmentally sensitive habitat areas and other marine resources, as well as adversely affect water quality. Construction equipment and activities conducted on the beach may impact intertidal habitat due to burial or reduction in water quality due to inadvertent discharge of construction materials, fuel or sediment. Similarly, construction equipment and activities conducted atop the eroding coastal bluff may impact upland plant and wildlife habitat.

b. Relevant Regulatory Policies

Coastal Act Sections 30230 and 30231 require that:

> ***Section 30230.*** *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*
>
> ***Section 30231.*** *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Coastal Act Section 30240 and 30255 require that:

> ***Section 30240(a).*** *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> ***Section 30240(b).*** *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

c. Analysis of Consistency with Applicable Policies

Coastal Act Section 30230 calls for the maintenance, enhancement and restoration (where feasible) of marine resources, with special emphasis on areas and species of special biological or economic significance. Coastal Act Section 30231 provides that the biological productivity of coastal waters,

streams, wetlands, estuaries, and lakes must be maintained and, where feasible, restored. This is to be achieved by, among other means: minimizing adverse effects of wastewater discharges and entrainment; controlling runoff; preventing depletion of groundwater supplies and substantial interference with surface water flow; encouraging wastewater reclamation; maintaining natural buffer areas that protect riparian habitats; and minimizing alteration of natural streams. Coastal Act Section 30240 prohibits any significant disruption of habitat values, and limits development within ESHA to uses that are dependent on the resources. It also requires that development adjacent to ESHA be sited and designed to prevent significant degradation, and be compatible with the continuance of the habitat.

The biological setting and assessment of potential project impacts of the 5th green seawall are described in the biological reports prepared by Zander and Associates, dated June 24, 2004 (ZA 6/04). The ZA 6/04 report updates an earlier report, dated December 9, 2003, in order to evaluate project impacts based on the most recent plans dated 5/28/04.

The ZA 6/04 biological report describes the 5th green site as a combination of native and non-native landscape species, many of which were planted in 1998/1999 as part of the erosion control and landscape restoration plan approved by the County for the new 5th hole. Vegetation along the 5th green bluff includes mostly grasses and herbaceous species, but also includes 2 live oak seedlings, and 2 shrubby willows at the toe of the slope. Grasses found on site include invasive non-native kikuyu grass, and other native grasses such as western fescue, tufted hairgrass, dune grass, and purple needle grass.

Additionally, approximately 20 dune buckwheat plants exist on the 5th green bluff site, which were also apparently planted as part of the landscape restoration plan when the new 5th hole was constructed. The dune buckwheat plant is one of two host plant species on which the endangered Smith's blue butterfly (*Euphilotes enoptes smithii)* associates, throughout its entire life cycle, and so, as critical habitat for this rare and endangered species, is considered environmentally sensitive habitat. The biological reports state that although Smith's blue butterflies were introduced into the area as part of the 1999 restoration, none were observed on site during field visits. The nearest recorded population is Point Lobos, over 5 miles from the site. Nevertheless, the project has been conditioned to replace the dune buckwheat plants with a 2:1 replacement ratio, in order to restore and protect the Smith's blue butterfly habitat (see Special Condition 1c).

The beach area below the 5th green does not support any coastal marsh or wetland species, and does not have a sufficient backbeach area to allow for dune formation. Shorebirds have been seen foraging at the tide line nearby the 5th green area; however, while the bluffs may provide resting and perching sites, because of their steep and erosional character, they do not provide suitable nesting or foraging habitat. It is also possible that the southern Pacific sea otter (*Enhydra lutris*) may make use of the protected rocky nearshore area, though none were observed during field visits.

No construction activities will occur below the mean high tide line. However, since construction activities will occur on the beach, it is possible that such activities, as well as those occurring atop the bluff, may have the potential to impact marine resources by inadvertently discharging sediment or construction materials into the waters of Stillwater Cove, which is also part of the Monterey Bay

National Marine Sanctuary (MBNMS). Permit conditions thus require evidence of conformance with MBNMS requirements or evidence that no such compliance is required.

In addition, permit conditions require a construction management plan showing all BMPs to be used to prevent such impacts (see Special Condition 1). BMPs shall include, but not be limited to placing coir rolls and/or silt fabric around the project construction area to keep sediment and construction debris from entering the intertidal zone. In order to protect water quality of Stillwater cove, the construction management plan shall also include measures to avoid accidental spills of petroleum products or hazardous substances. Heavy equipment used on the beach shall remain above mean high tide at all times. Heavy equipment used for concrete pouring will be located on the coastal terrace, and required to be set at least 50 feet landward of the blufftop. Other heavy equipment, which may be used atop the coastal bluff, will be required to be removed from the blufftop when not in use. All heavy equipment and project construction materials shall be stored in the construction staging areas shown on Exhibit I.1. All areas of beach disturbed by construction activities shall be restored to their original pre-construction condition (See Special Condition 1).

The 5th green bluff shall be revegetated to reduce the potential for erosion in this area, and will be replanted with native vegetation appropriate to the site, including replacement planting of 40 dune buckwheat plants, according to a landscape plan that has been reviewed and approved by the Executive Director. Revegetation efforts may include erosion control fabric and straw mulch and seeding using native dune grass, wild rye and tufted hairgrass.

d. Conclusion

As designed and conditioned to require a construction management plan, including implementation of BMPs to prevent the inadvertent discharge of debris into the intertidal zone, and to prevent accidental spills of petroleum products or hazardous substances, restoration of the 5th green bluff face with native vegetation suitable to the site, and restoration of beach areas disturbed by construction, no significant disruption of marine resources or environmentally sensitive habitat areas will result. As such, with the inclusion of mitigation measures designed to prevent adverse impacts from construction activities, and to protect environmentally sensitive habitats and resources of the marine environment, the project conforms to the environmentally sensitive habitat and biological resource protection requirements of Coastal Act Sections 30230, 30231, and 30240.

4. Visual Resources

a. Issue

The 5th hole and coastal bluffs are located in a scenic coastal area, and proposed development could affect the scenic resources of Stillwater Cove and beach.

b. Relevant Regulatory Policies

Coastal Act Section 30251 requires that:

> ***Section 30251.*** *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

Additionally, Coastal Act Section 30253(5) states that:

> ***Section 30253(5).*** *Where appropriate, protect special communities and neighborhoods, which, because of their unique characteristics, are popular visitor destination points for recreational uses.*

c. Analysis of Visual Resources

The project is located along the very scenic shoreline of Stillwater Cove, and is in an area shown on the Del Mont Forest LUP Visual Resources map as a scenic shoreline area visible from 17-Mile Drive and Point Lobos, across Carmel Bay. The Coastal Act requires that scenic and visual resources be protected by minimizing landform alteration, and by siting and designing development to be visually compatible with the character of the surrounding areas. Del Monte Forest LUP policies also require that new development not detract from scenic shorelines, and that structures be subordinate to and blended into the environment, using appropriate materials to achieve that effect (LUP Policy #56) and utilize native vegetation and topography to provide screening (LUP Policy #57).

As described previously, the project has been designed to minimize landform alteration by its vertical, reinforced concrete design, and use of tiebacks to retain a close proximity to the base of the bluff and to conform to the existing bluff face as much as possible. The project will also use artificial stone fascia on the face of the seawall, using concrete that will be colored and texturized to match the stratigraphy and visual character of the bluff face. A visual simulation of the existing and post-construction bluff face is shown in Exhibit H. Examples of similar work already constructed in other nearby areas are provided in Exhibit J. As shown in these examples, the stone fascia covering will enable the 5th hole seawall structures to be subordinate to and blend in to the surrounding bluff face, so that they are visually compatible with the character of the surrounding area. Since the actual visual compatibility will depend on the end results of the project and how well it is maintained, the permit has been conditioned to require photo documentation of the seawall at the end of construction and maintenance of the structure over time. The project also includes use of native vegetation on the slope above the 5th green seawall, which will help these areas to further blend in with the appearance of the surrounding bluffs. And as the seawall does not extend above the bluff top or out significantly from the bluff face, it will not block any public views.

Since the proposed project will not significantly alter scenic public views because it has been designed to minimize visual impacts, and will preserve the scenic character of the Stillwater Cove area, the Commission finds that this project is consistent with Section 30251 and 30253(5) of the Coastal Act.

5. Archaeological Resources

a. Issue

Archaeological resources are known to exist near the 5th Hole (in particular, the 5th tee), and could be impacted by project activities.

b. Relevant Archaeological Resources Policies

Section 30244 of the Coastal Act states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The Del Monte Forest Land Use Plan also provides guidance on this topic as follows:

> ***LUP Policy 60.*** *The timely identification and evaluation of archaeological, historical, and paleontological resources is encouraged, in order that these resources be given full consideration during the conceptual design phase of land use planning for project development.*
>
> ***LUP Policy 61***. *Whenever development is proposed, it shall be determine whether the affected property has received an archaeological survey… The survey should describe the sensitivity of the site and make appropriate recommendations concerning needed protection of the resource.*
>
> ***LUP Policy 63.*** *When developments are permitted on parcels where archaeological or other cultural resource sites are located, project design shall be required which avoids impacts to such sites…*

c. Archaeological Resources Analysis

A letter report, submitted by the archaeological consultant Gary Breschini from Archaeological Consulting (dated September 11, 2003), in response to the emergency rip-rap bluff stabilization project permitted under CDP 3-03-111-G, indicates that archaeological reconnaissance and monitoring was conducted during original construction of the 5th hole at the top of the bluff to protect midden remains located in an archaeological easement on the residential parcel located nearest the 5th tee. Monitoring conducted during grading for the 5th hole found only sparse cultural materials along the top of the bluff, and the soils containing those cultural materials was subject to extensive disturbance and removal. The report noted that no potentially significant cultural materials were believed to remain at the top of the eroding bluff. The report also noted that work done for the emergency bluff stabilization would occur at

depths below the deepest midden development in this site, and so concluded that bluff stabilization should not be delayed for archaeological reasons.

The proposed project includes only minor grading, with a seawall set against the bluff face. However, since construction activities may unearth previously undisturbed materials, the project has been conditioned to halt work and prepare and implement an archaeological mitigation plan if archaeological resources are encountered.

Therefore, as conditioned to require suspension of work and development of a mitigation plan if archaeological materials are found, the proposed development is consistent with Section 30244 of the Coastal Act and approved LUP archaeological resource policies.

6. California Environmental Quality Act (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effects which the activity may have on the environment. Beyond this, the Secretary of Resources has certified the Coastal Commission's review and analysis of land use proposals as being the functional equivalent of environmental review under CEQA.

In the course of application review, several potential environmental impacts were identified and are discussed in the findings of this staff report, which is incorporated herein as set forth in full. These include, but are not limited to, potential erosion and sedimentation into waters of the Monterey Bay National Marine Sanctuary, loss of sand supply for beach nourishment, loss of coastal access and loss of public recreational use of the beach adjacent to the project site. Accordingly, the Commission finds that only as conditioned by this permit will the proposed project not have any significant adverse effects on the environment within the meaning of CEQA.

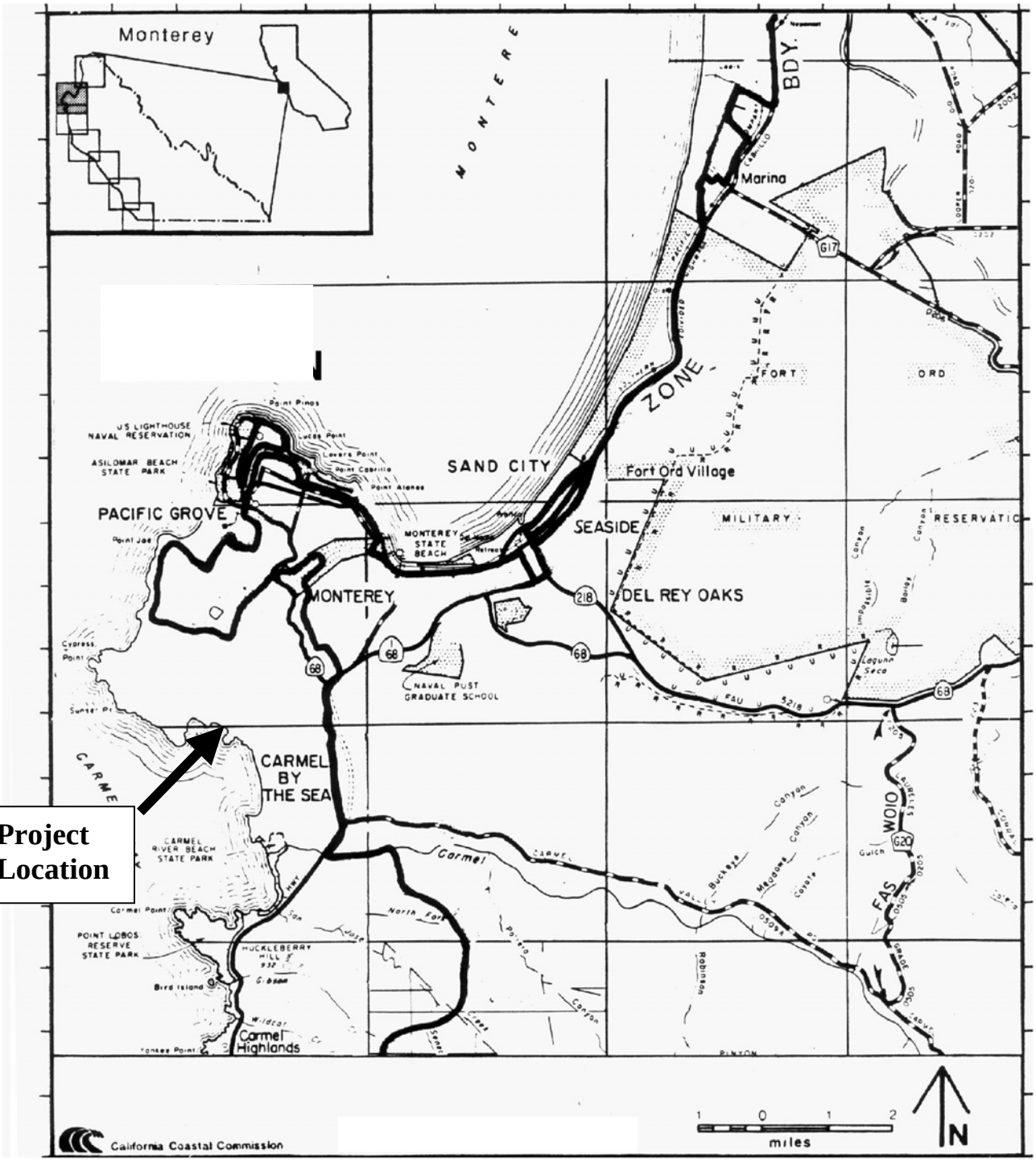

Exhibit A
Regional Location Map

3-06-033
Pebble Beach Golf Links 5th Green Seawall

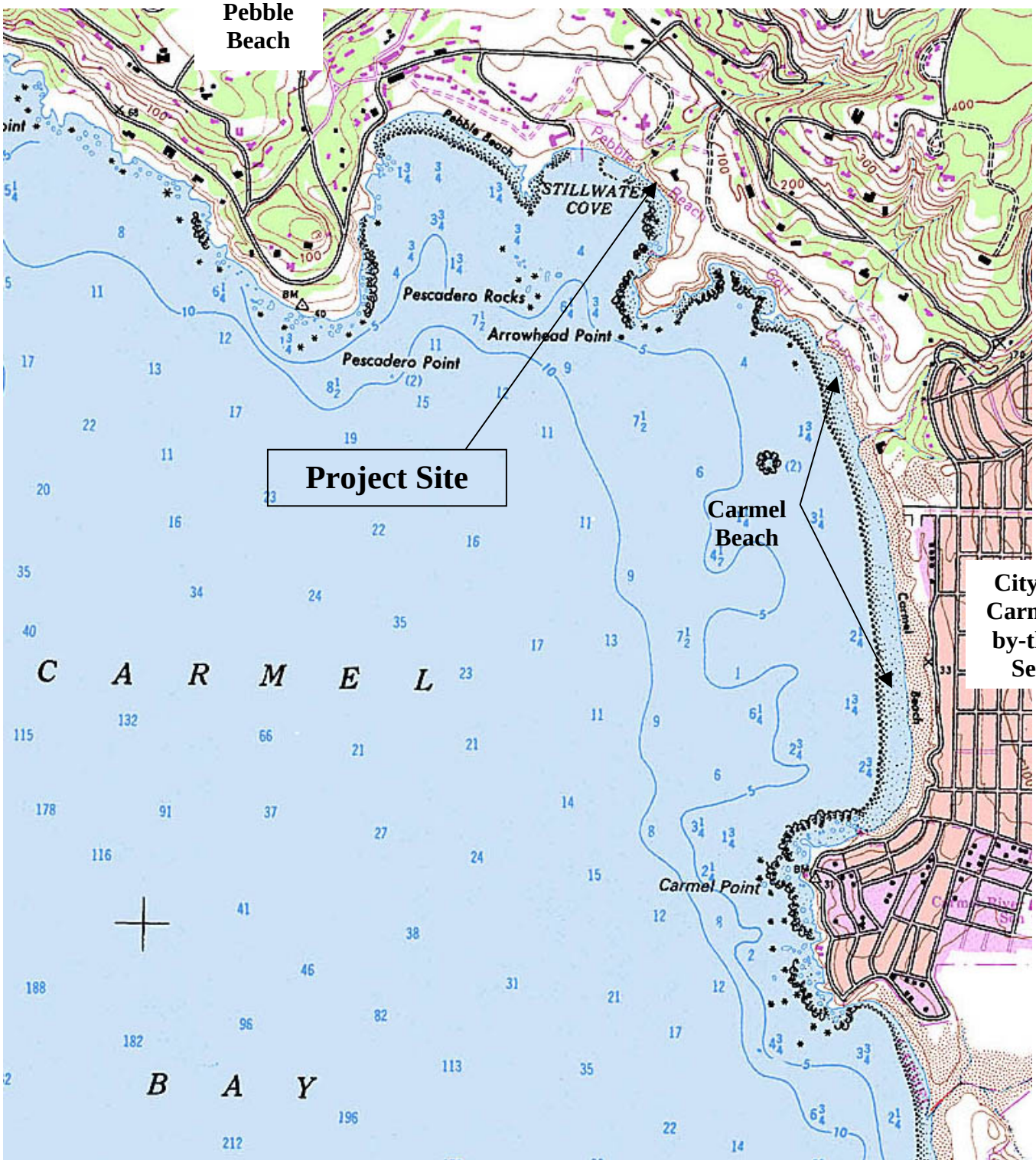

Exhibit B
Vicinity Map:
Pebble Beach, Stillwater Cove, and Carmel

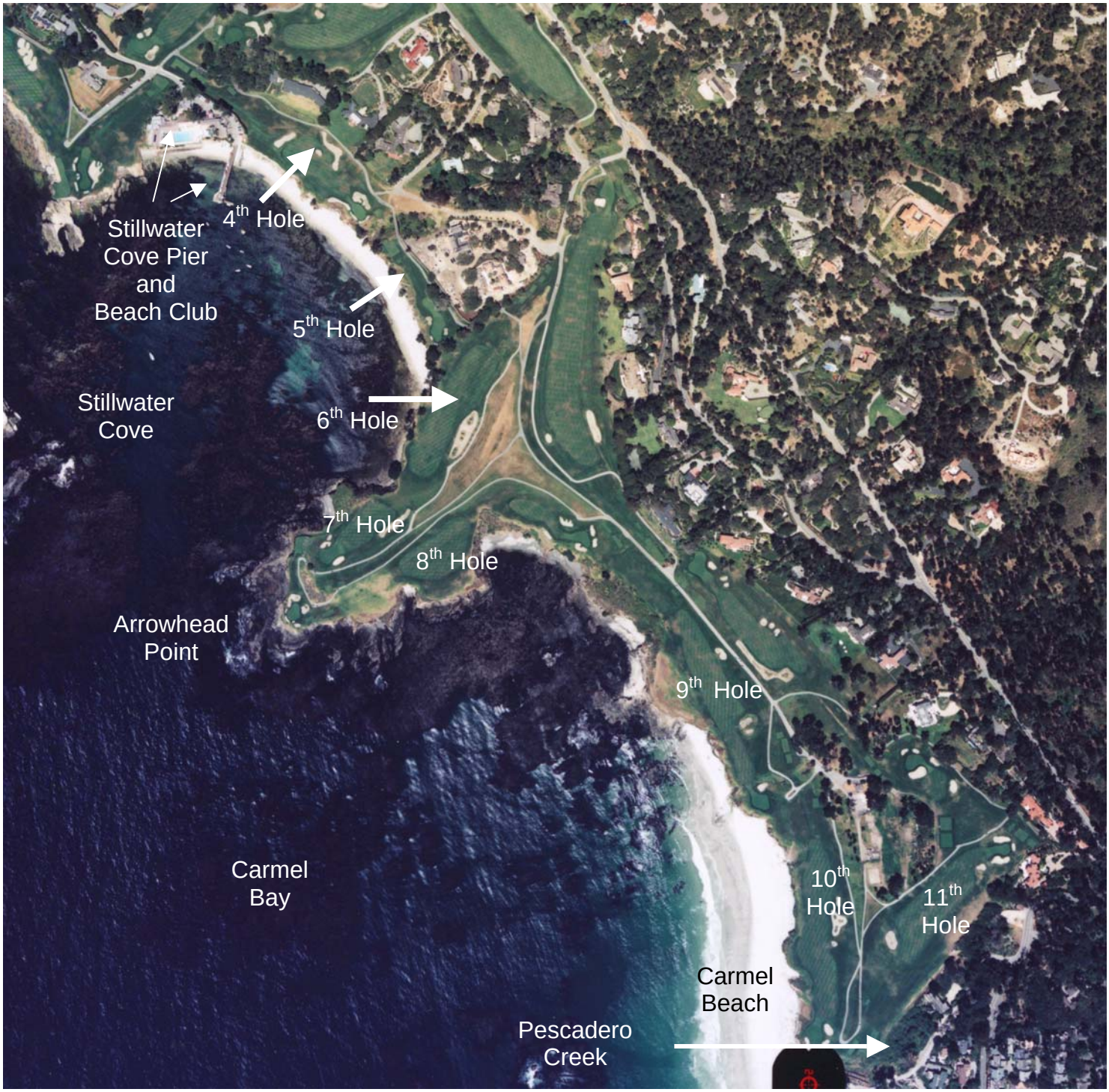

Exhibit C
2001 Aerial Photo – showing layout of Pebble Beach Golf Links in project vicinity (between Stillwater Cove and Pescadero Creek)

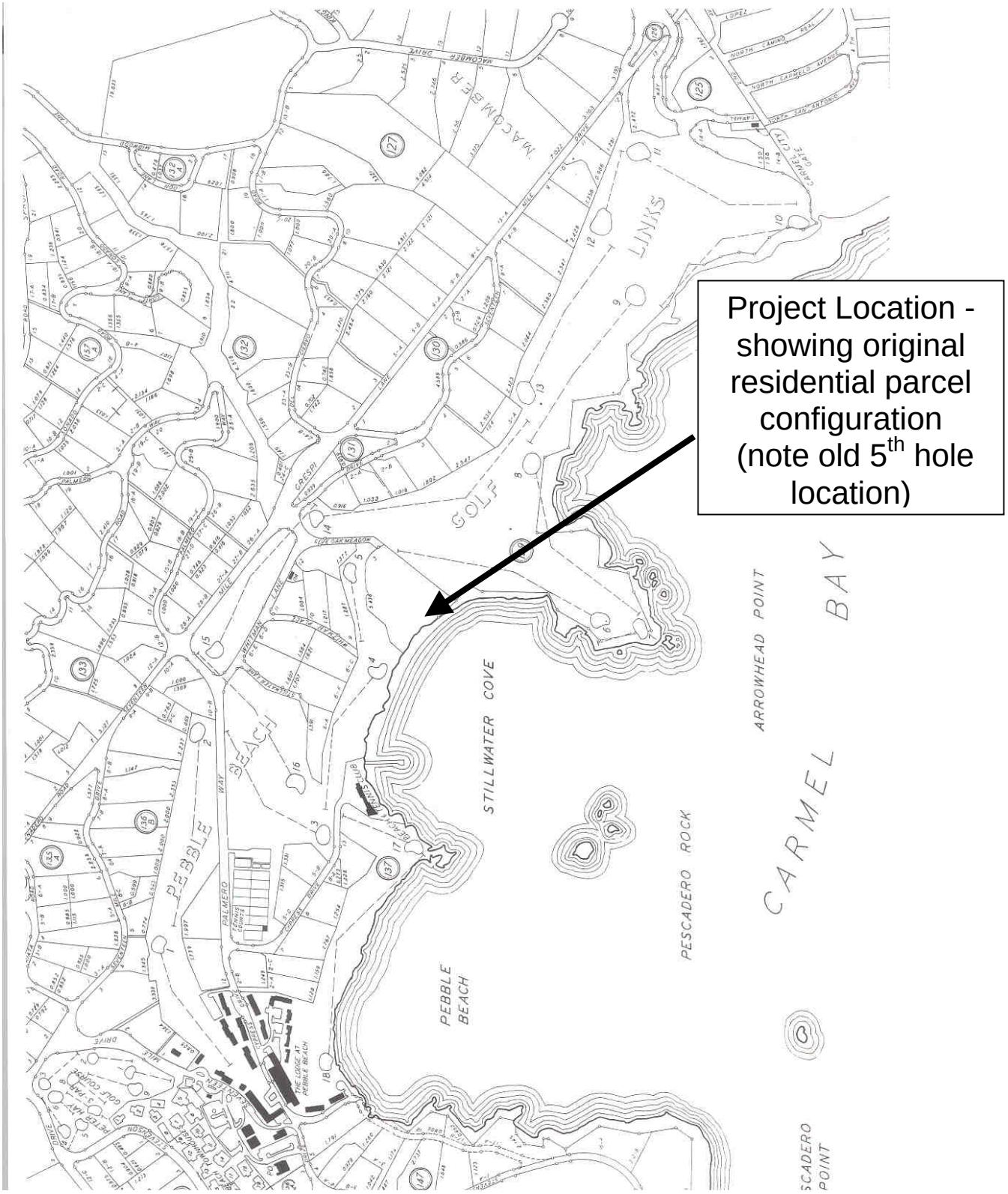

Exhibit D.1
Early Assessors Parcel Map of Pebble Beach Area - showing original residential parcel and old 5th hole alignment.

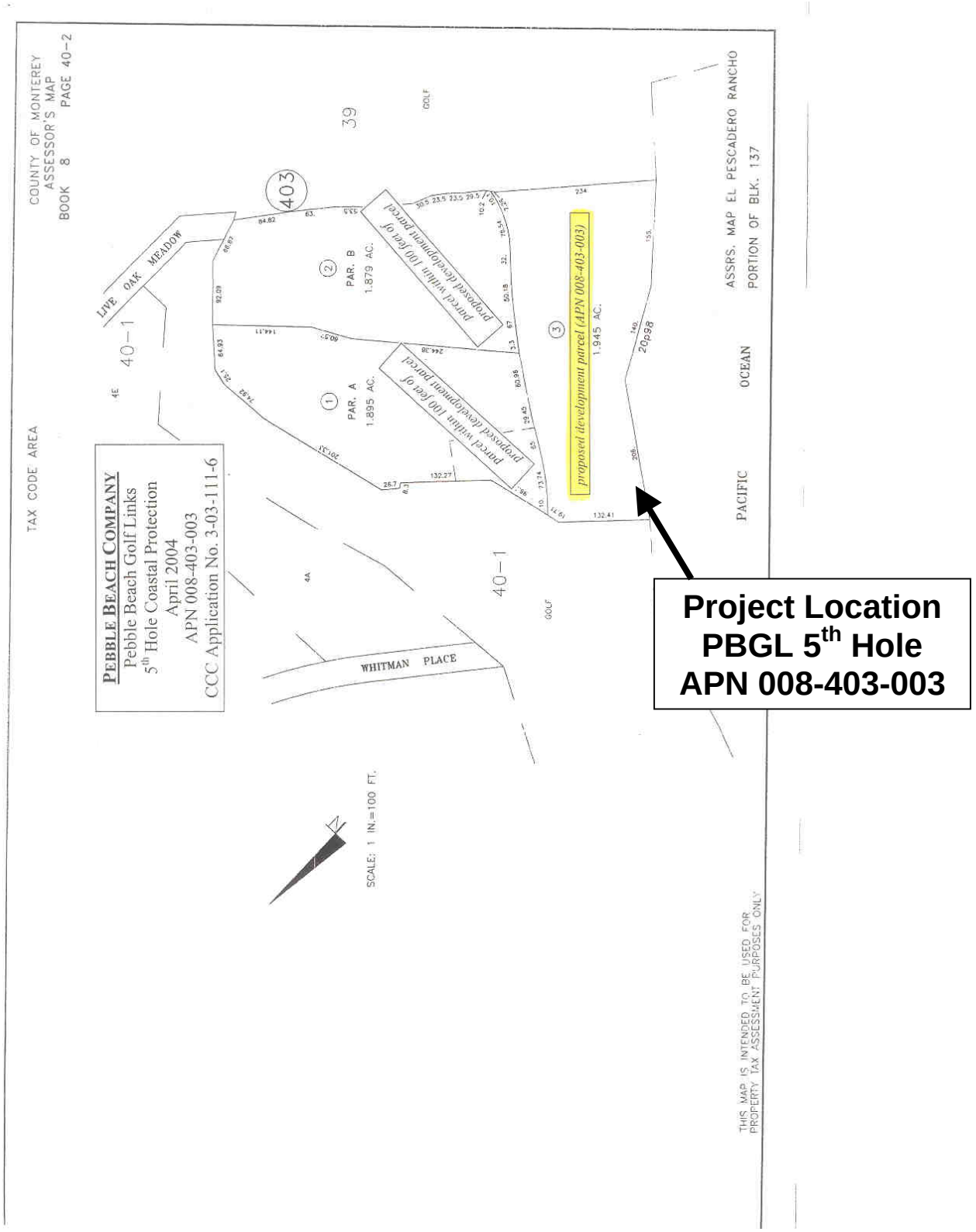

Exhibit D.2
Current Assessors Parcel Map – showing new residential lot configuration and new 5th hole parcel on APN 008-403-003

Exhibit E.1
2001 Aerial Photo of Pebble Beach Golf Links 5th Hole

3-06-033
Pebble Beach Golf Links 5th Green Seawall

Exhibit E.2
Oblique Aerial Photo of Pebble Beach Golf Links 5th Hole

3-06-033
Pebble Beach Golf Links 5th Green Seawall

Photo 1
Staff photo of landslide scarp and erosional gully near 5th green (bunker to left)

Photo 2
Staff photo of proximity of sand trap and 5th green to top of landslide scarp

Exhibit F – page 1 of 2
Staff Photos of 5th Green (dated October 27, 2004)

Photo 3
Staff photo looking north from 5th green, showing proximity of hole to top of bluff

Photo 4
Staff photo of emergency revetment and shotcrete in erosional gully formed by landslide below 5th green

Exhibit F – page 2 of 2
Staff photos of 5th Green (dated October 27, 2004)

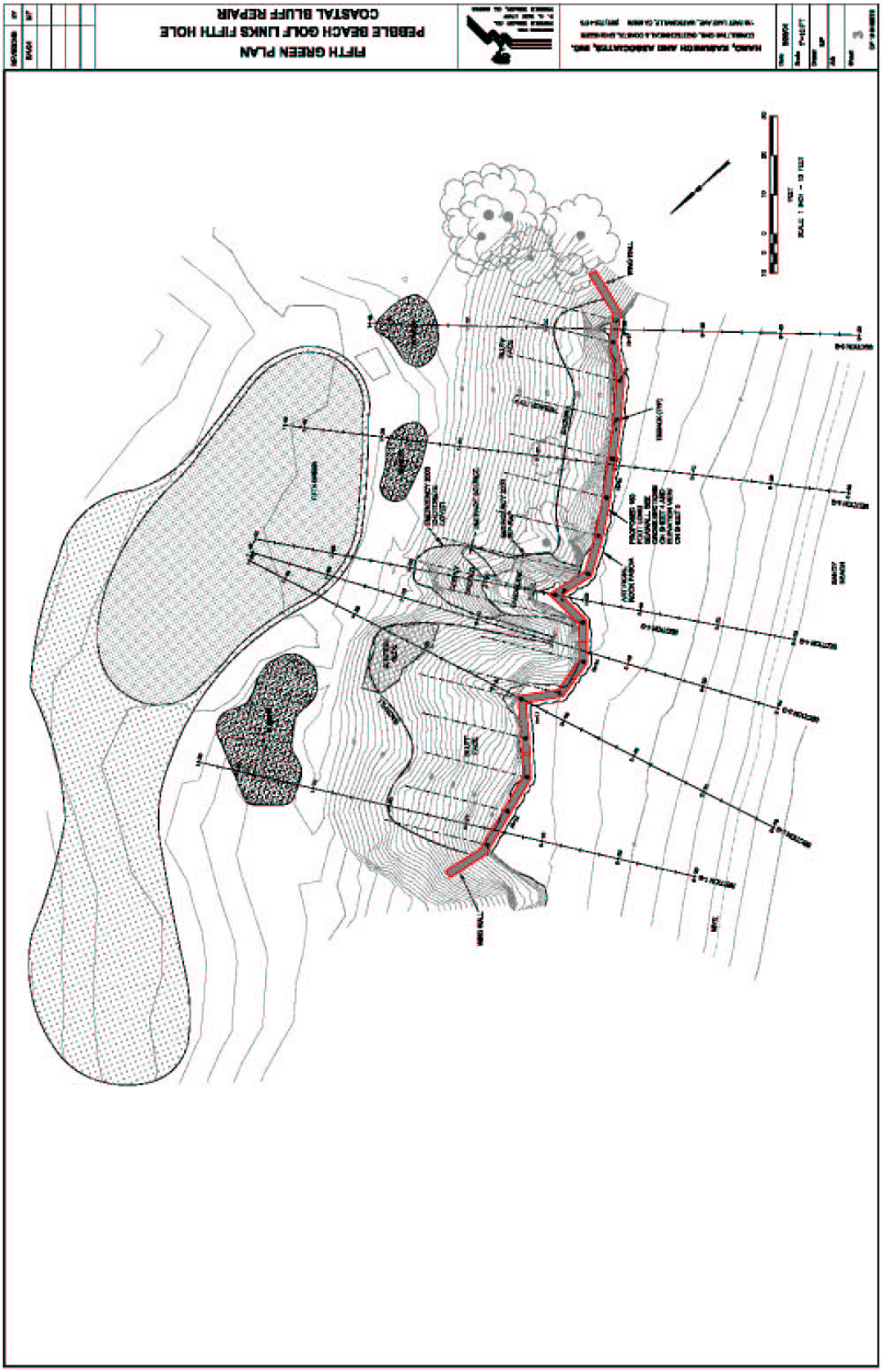

Exhibit G – page 1 of 2
Proposed Site Plans and Elevations

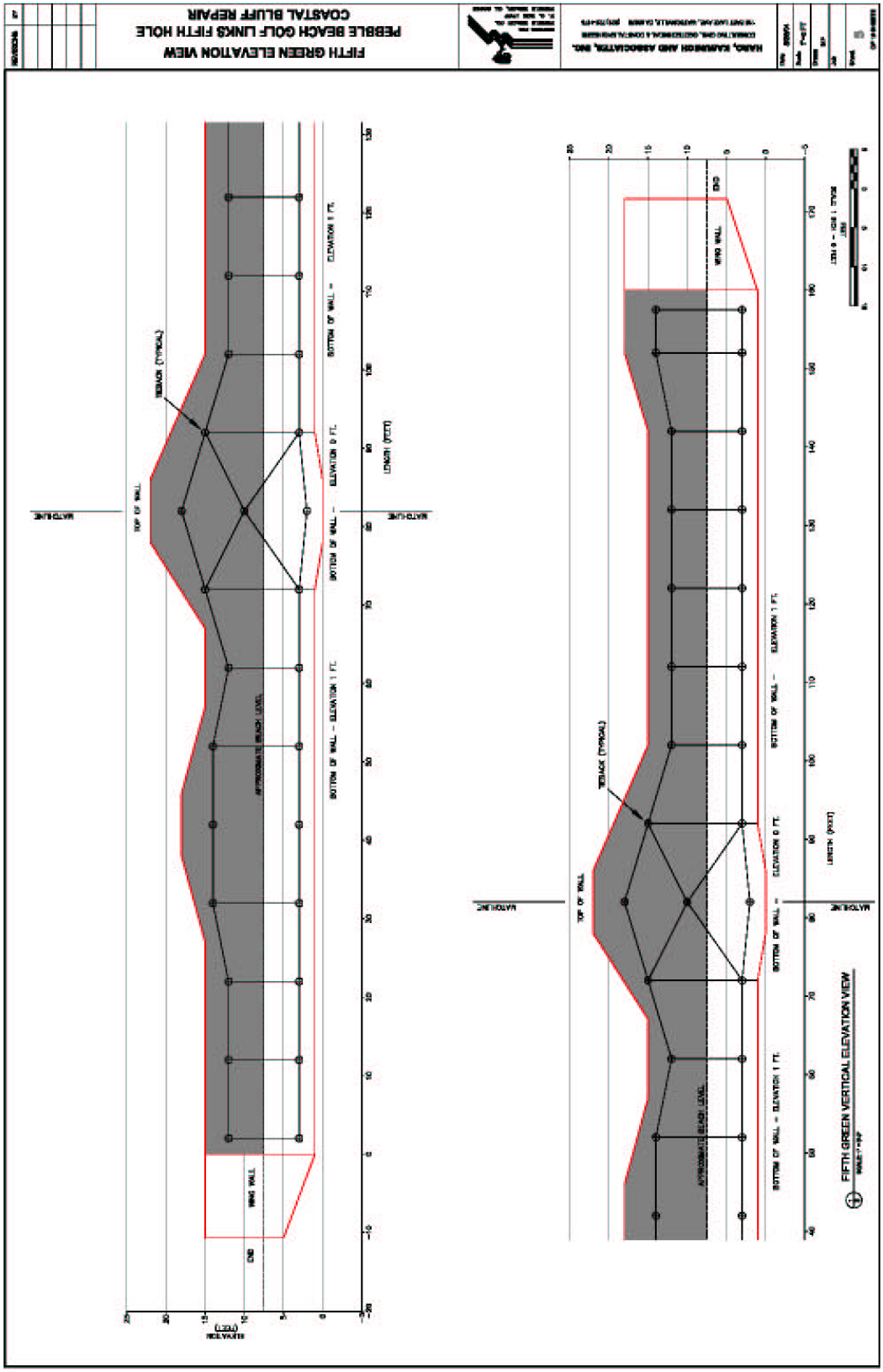

Exhibit G – page 2 of 2
Proposed Site Plans and Elevations

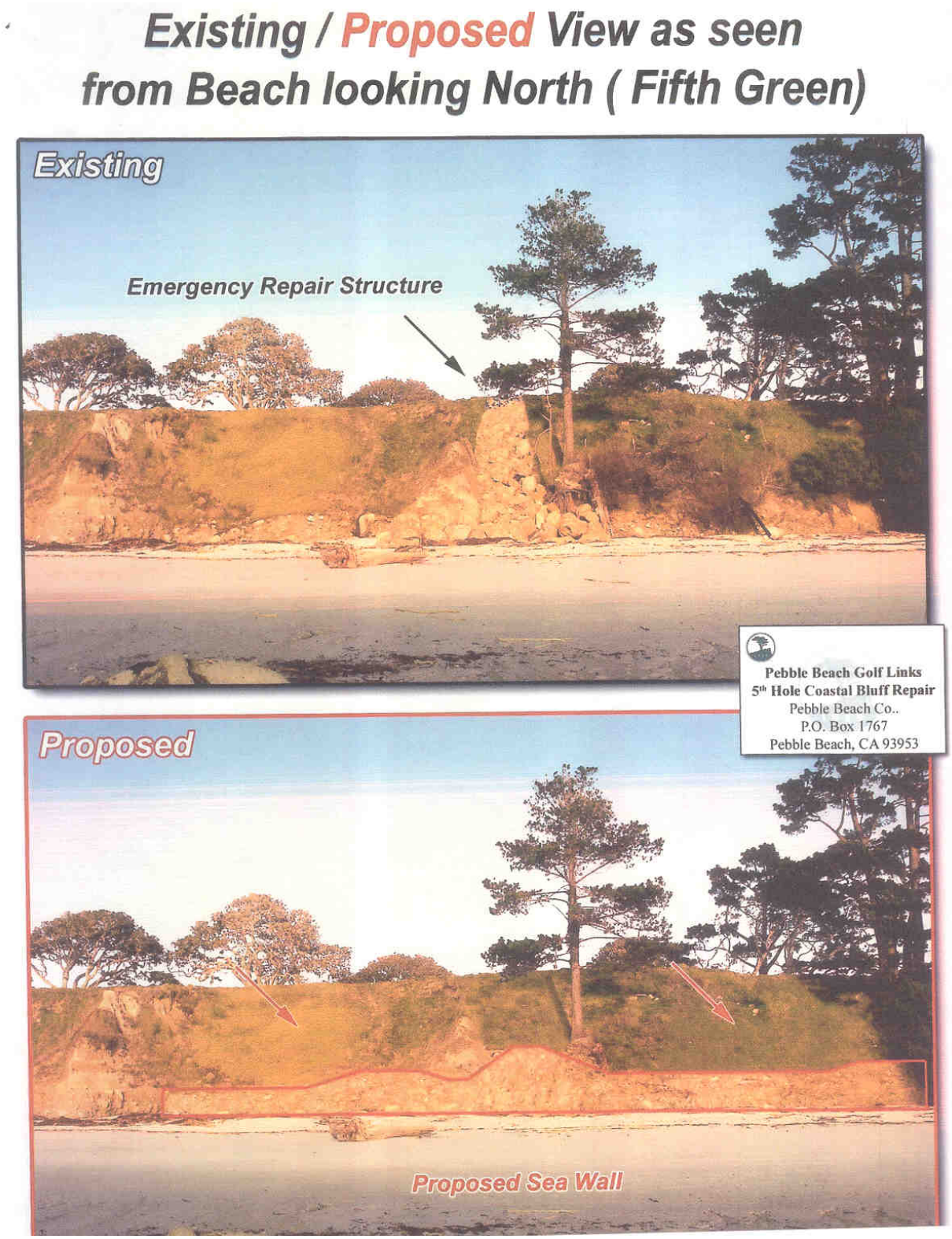

Exhibit H
Visual Simulation of Coastal Bluff Before and After Proposed Seawall

3-06-033
Pebble Beach Golf Links 5th Green Seawall

Exhibit I.1
2001 Aerial Photo of Site Showing Proposed Construction Route

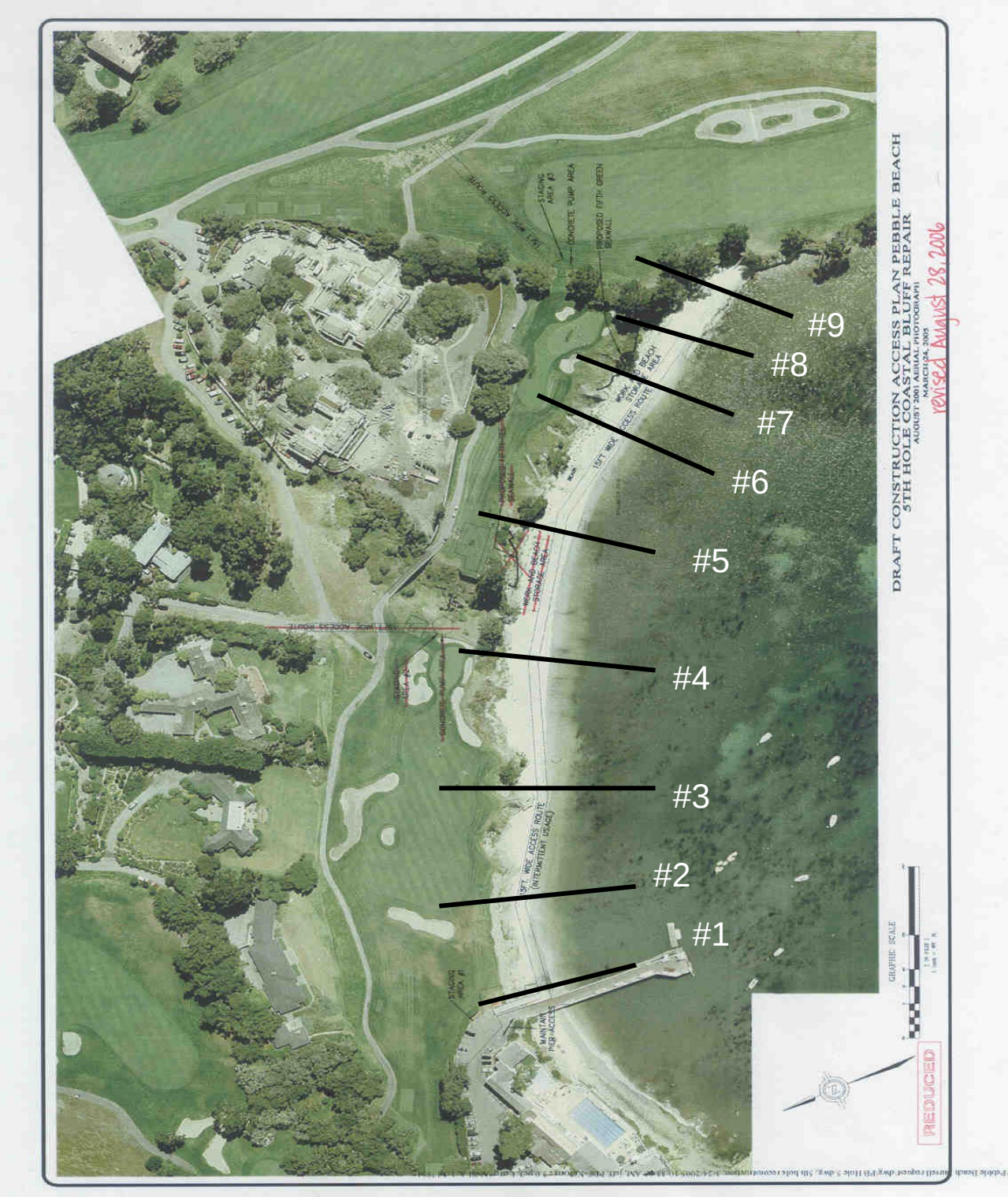

Exhibit I.2
2001 Aerial Photo of Site Showing Required Beach and Bluff Profiles - Approximate Locations

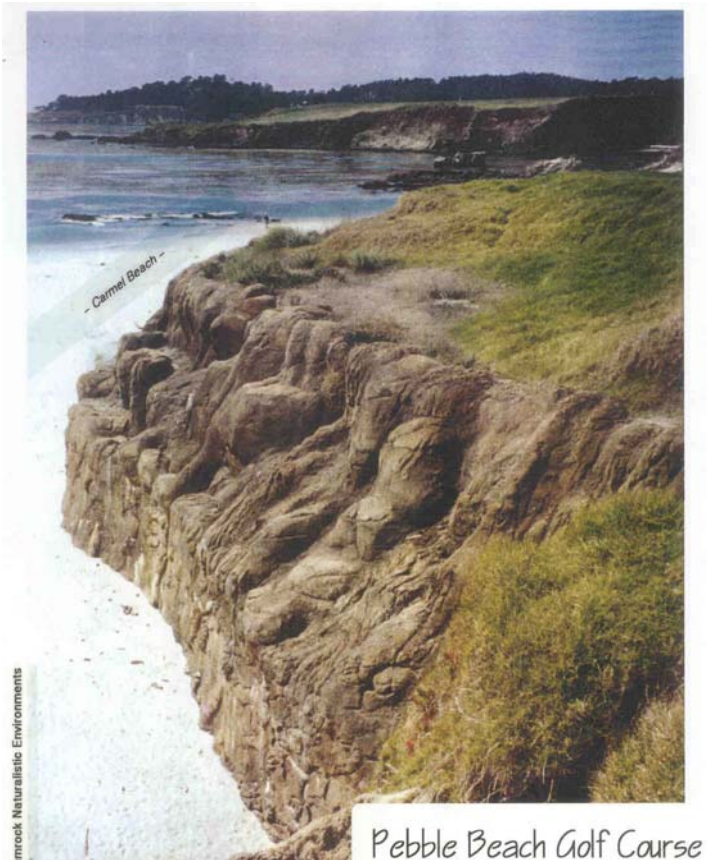

Photo 1
Applicant's photo of 9th Hole seawall (Summer 1998)

Photo 2
Applicant's photo of 9th Hole seawall (6/24/04)

Exhibit J – page 1 of 3
Examples of Other Shoreline Protection Structures within Project Vicinity

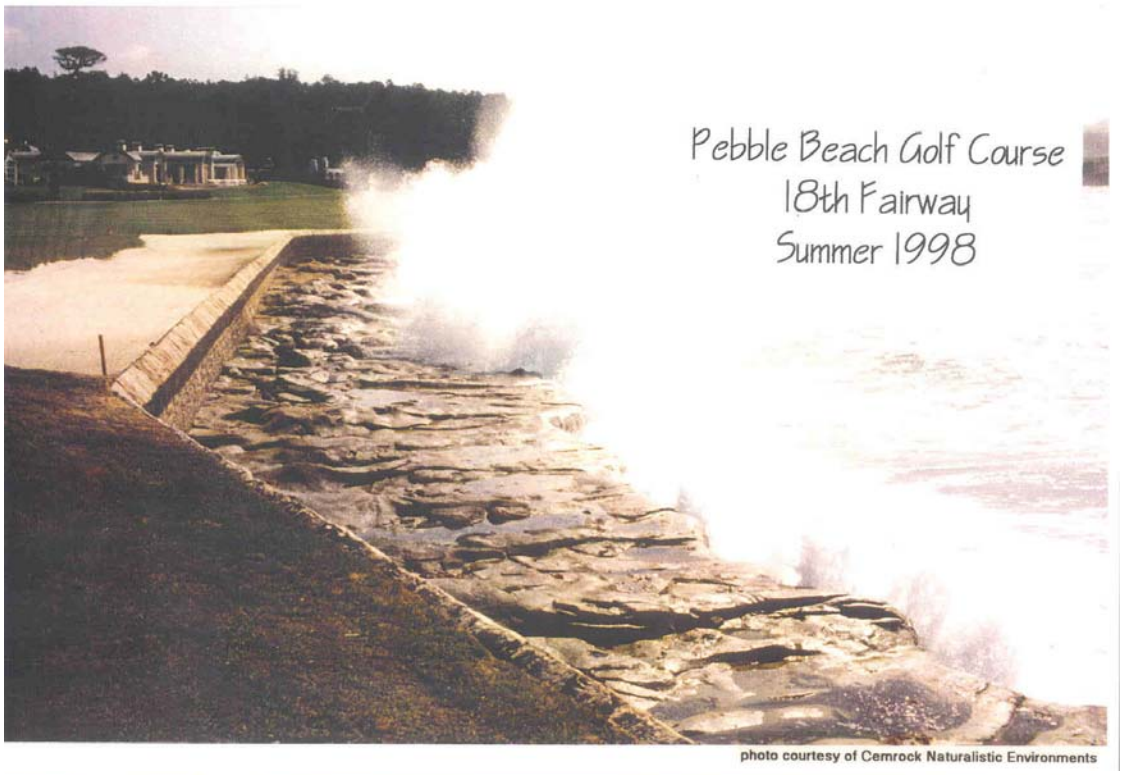

Photo 3
Applicant's photo of seawall at 18th fairway (Summer 1998)

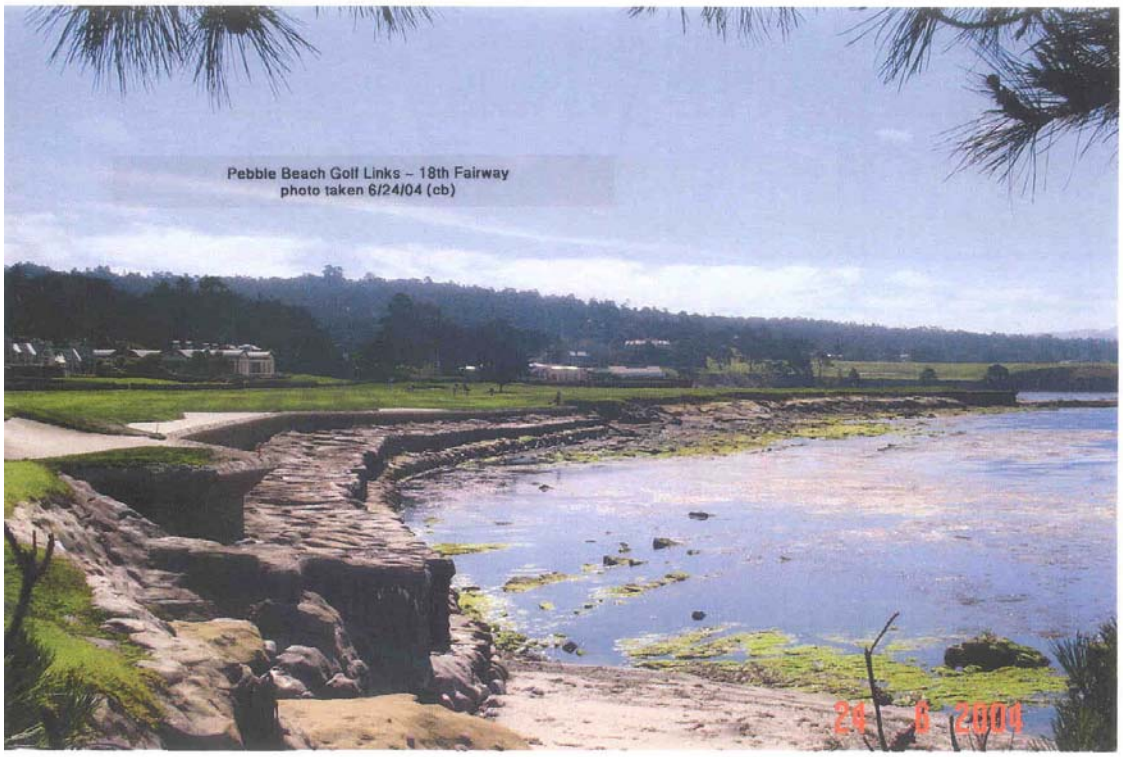

Photo 4
Applicant's photo of seawalls along 18th green (in foreground), fairway, and tee (on right side of photo) (6/25/04)

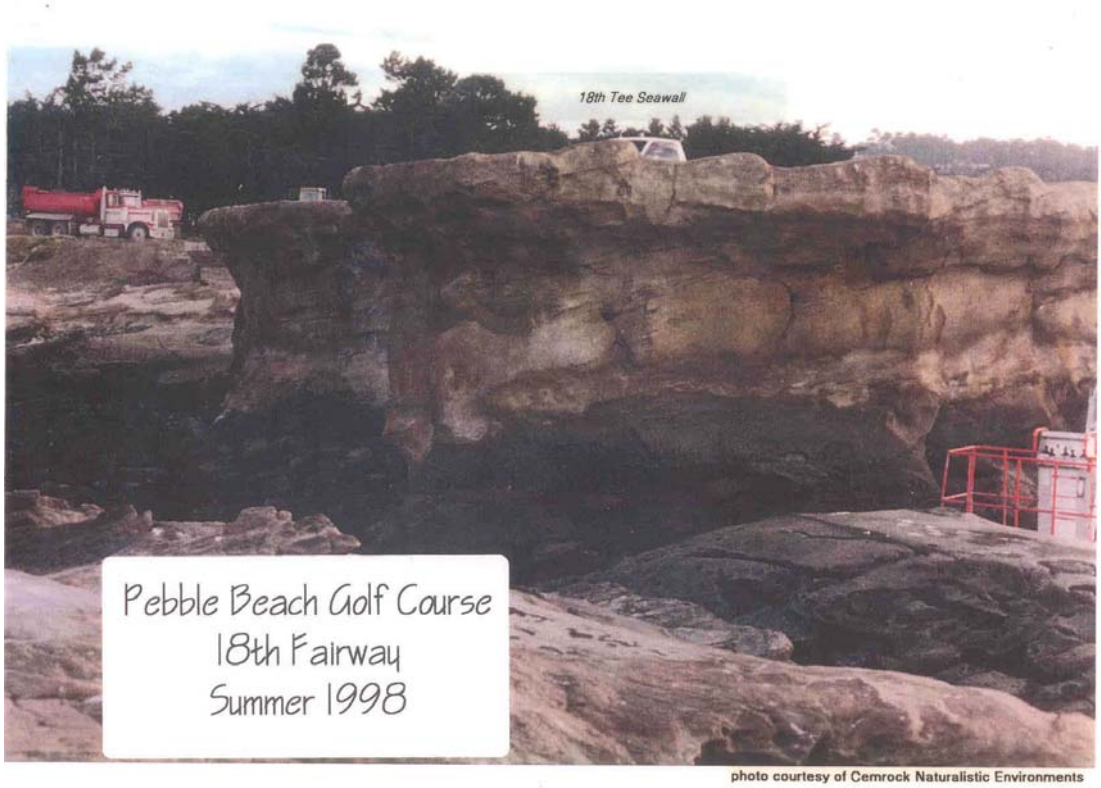

Photo 5
Applicant's photo of seawall at 18th Tee (Summer 1998)

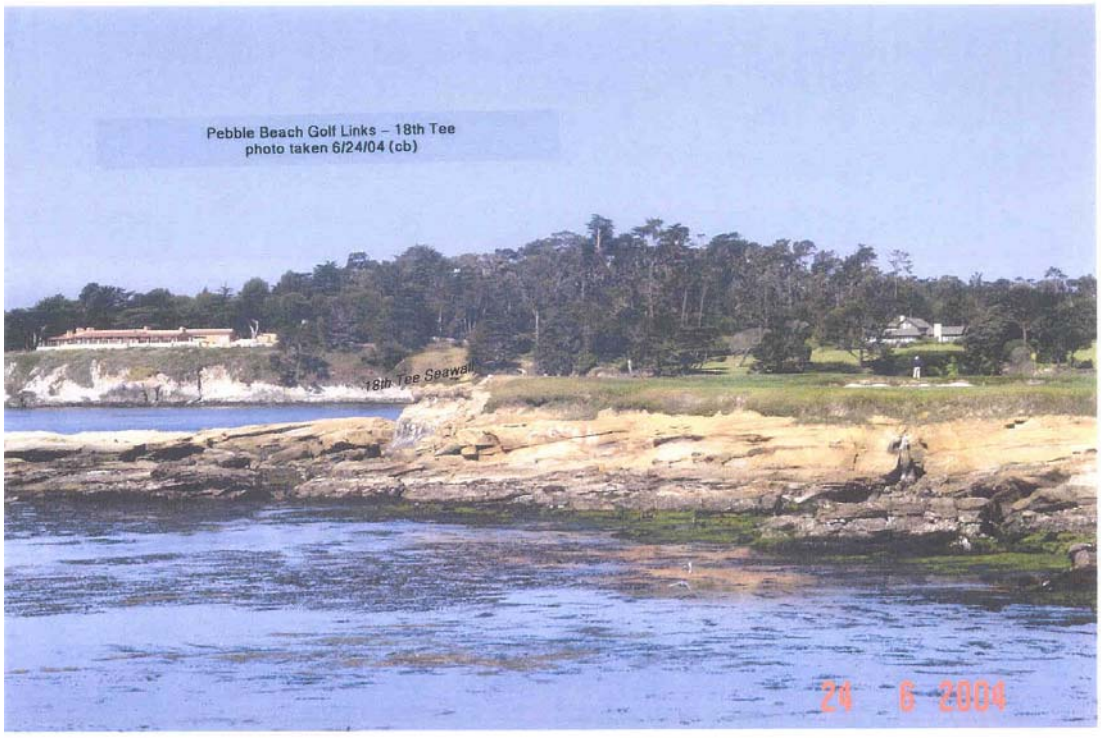

Photo 6
Applicant's photo of seawall at 18th Tee (6/24/04)

FIGURE 16

SHORELINE ACCESS

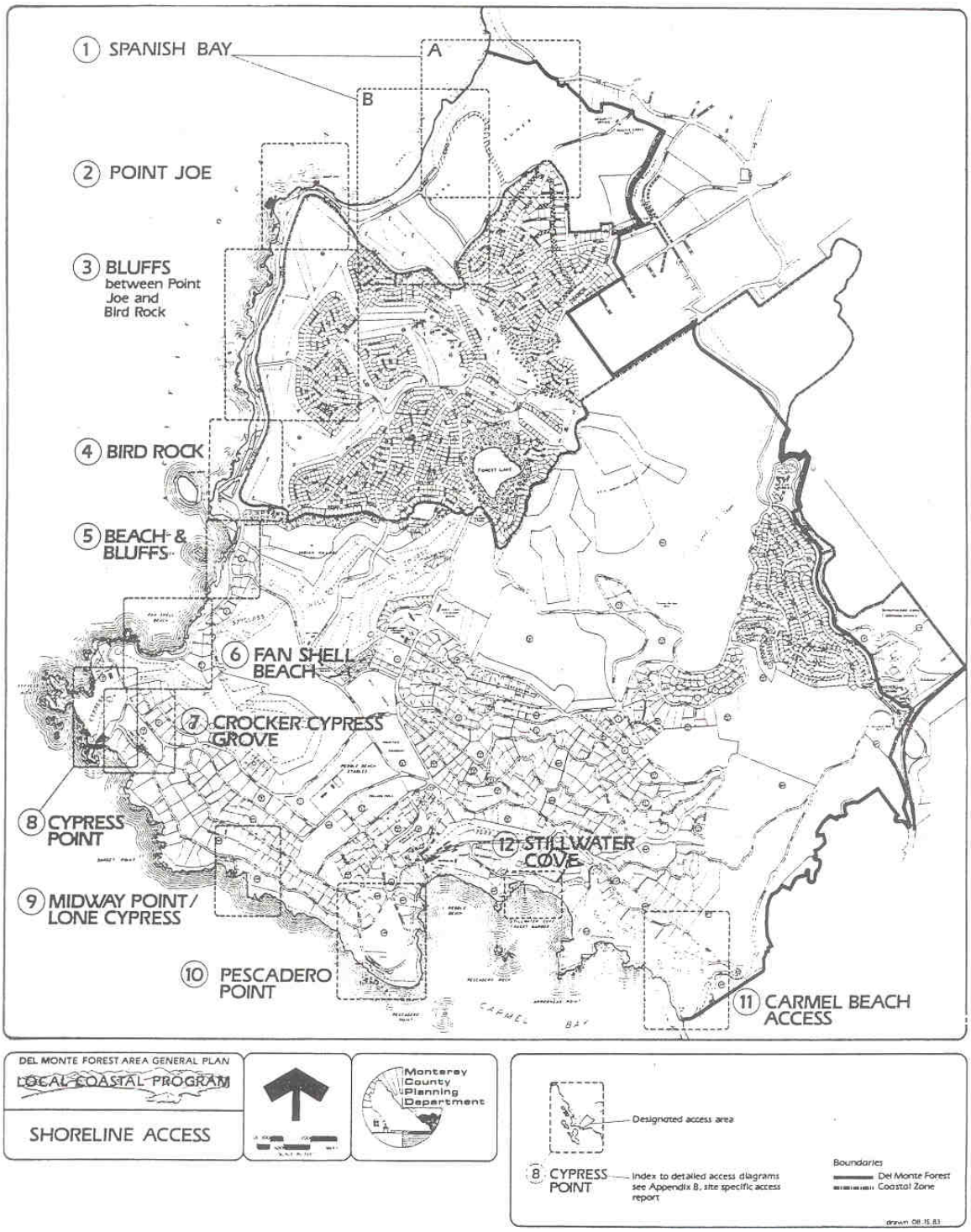

Exhibit K
Del Monte Forest LUP Map of Shoreline Access Areas

FIGURE 15

RECREATIONAL FACILITIES

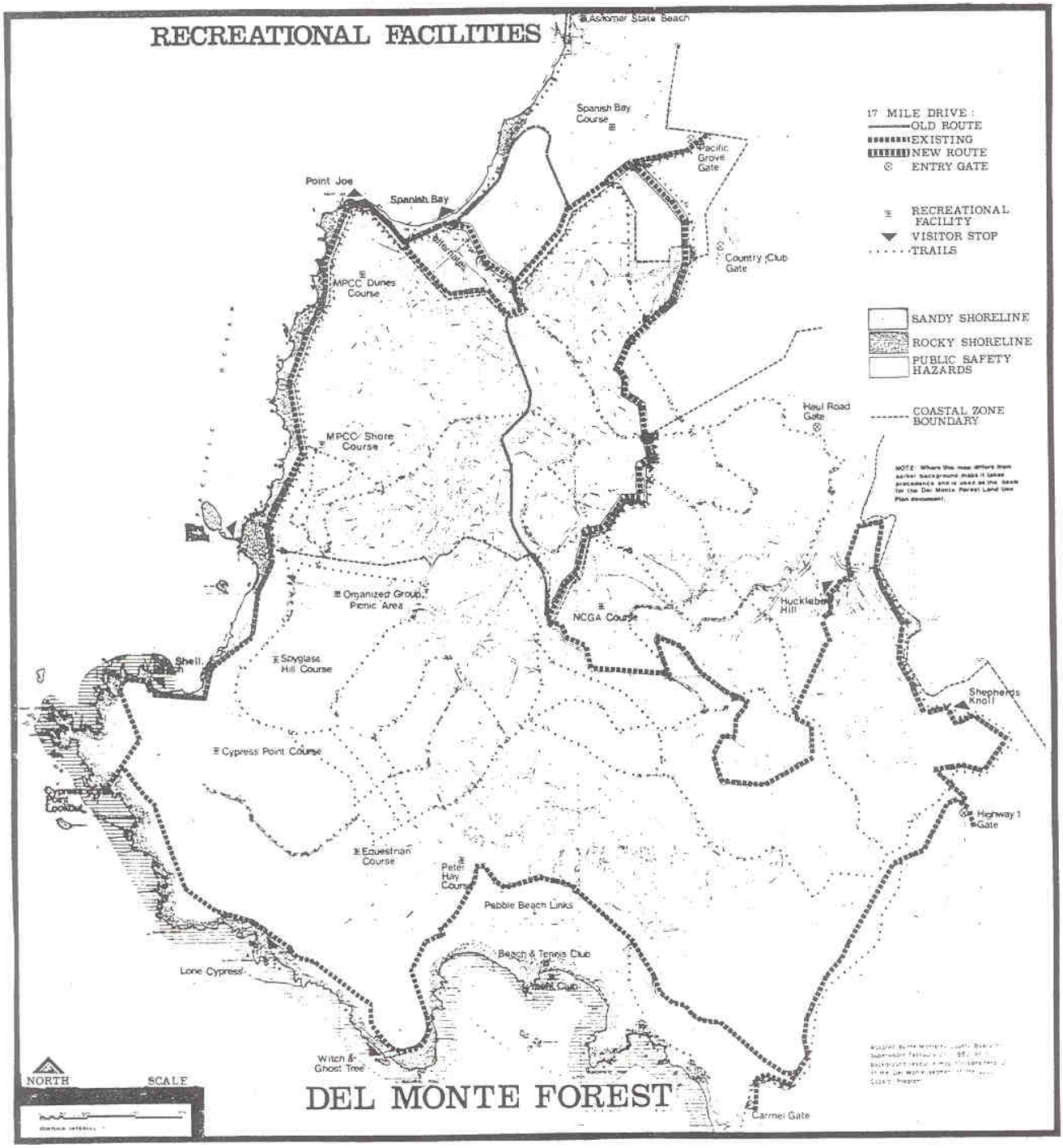

Exhibit L
Del Monte Forest LUP Map of Recreational Facilities – showing recreational trail system

Exhibit M.1
2004 Oblique Aerial Photo of Pebble Beach Golf Links at 10th Green-showing recommended alignment for Carmel Beach Accessway along historic Redondo Trail

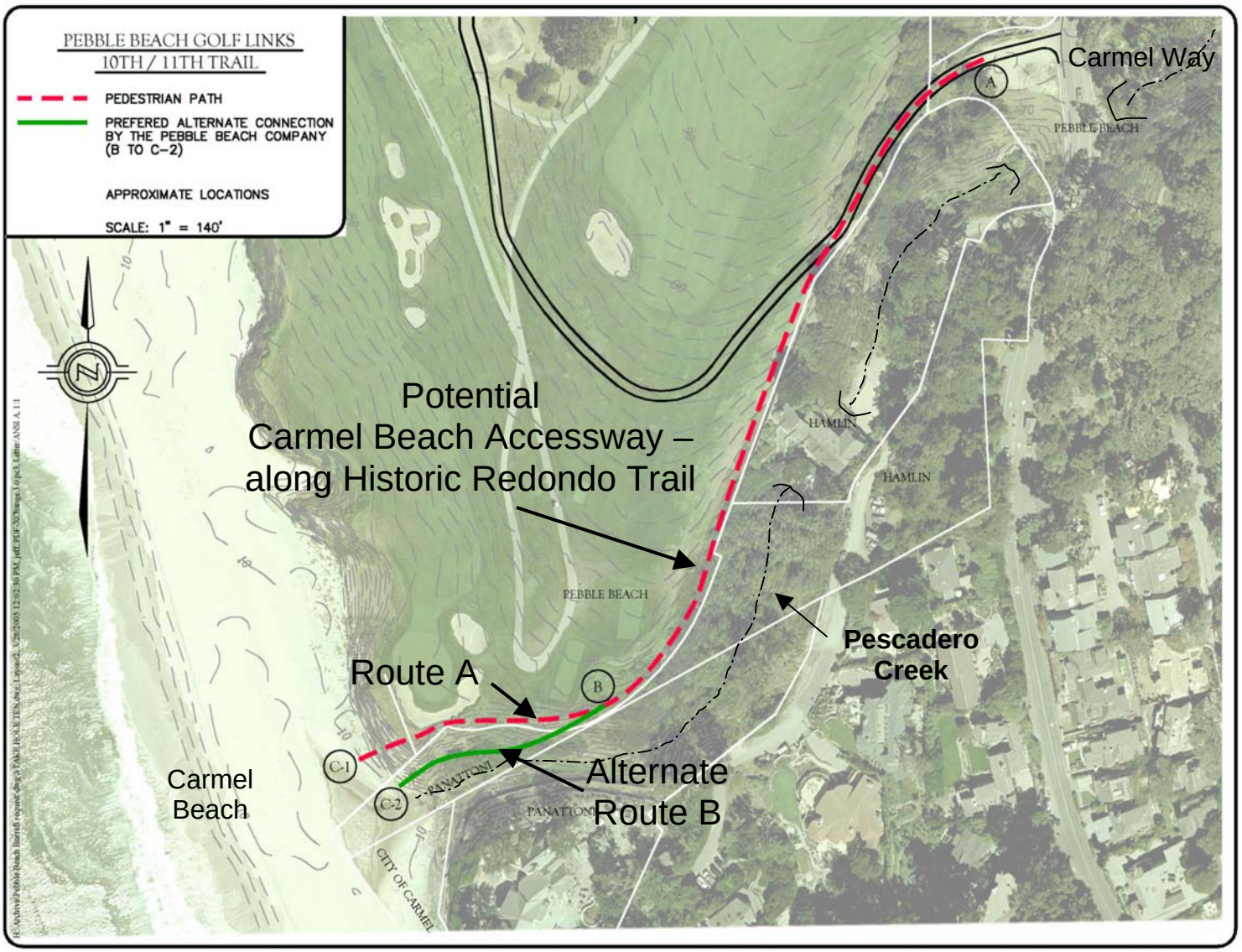

Exhibit M.2
Aerial Photo showing Approximate Location of Carmel Beach Accessway
(Plan View)

3-06-033
Pebble Beach Golf Links 5th Green Seawall

Exhibit N
Staff photo of public recreational use of Redondo Trail to Carmel Beach

Photo 1
Staff photo of protective fencing along public accessway through Ocean Colony Golf course in Half Moon Bay (Note: grade break on the left side of photo; in time, planted vegetation will screen fencing)

Photo 2
Staff photo of protective fencing along public accessway through. Ocean Colony Golf course in Half Moon Bay (Note: direction of play is from left to right)

Exhibit O
Staff photos of public access way and protective fencing at Ocean Colony Golf Course in Half Moon Bay